

ROCKWOOD

ENGINEERING & TECHNOLOGY

Invention & Innovation

7th Grade

Lesson Plans

Mr. Kush

August 30

Invention & Innovation 7th 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: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

August 31

Invention & Innovation 7th 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:** **CONTINUED:**

“Giant Inch” measuring review activity
Begin “Measuring Practice” handout

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

September 1

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to use a ruler and measure to the nearest 1/16” inch.

ACTIVITIES: Completion of the following measuring activity:
“Measuring Practice” handout
“Measuring Practice 1” handout – (Possibly complete for homework)

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

September 2

Invention & Innovation 7th 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.
- 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
- 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 and application of measuring
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time
Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
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PA STANDARDS for Science, Engineering, and Technology: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

September 6

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to sketch and evaluate preliminary designs for the Golf Ball Tower Challenge
- ACTIVITIES:** Golf Ball Tower Challenge - Handout
Discuss challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Select groups – and group leader
Acquire materials
Begin sketching and evaluating designs
- EVALUATION:** Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of structures and their foundations
- 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
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Verbal presentation of reading material by aid when present
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PA STANDARDS for Science, Engineering, and Technology: 3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

September 7

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to select a golf ball tower design from their sketches and build it using the provided materials.

ACTIVITIES: Golf Ball Tower Challenge - Handout
Review discussion challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Groups will build their structure and revise and adapt as necessary

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
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PA STANDARDS for Science, Engineering, and Technology:
3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

September 8

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to conduct group presentations based on the Golf Ball Tower design challenge according to the criteria in the rubric.

ACTIVITIES: Golf Ball Tower Challenge – rubric review
Presentation of Designs and 75% of structure calculation

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation

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

ENRICHMENT: Independent exploration and application of structures and their foundations

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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PA STANDARDS for Science, Engineering, and Technology:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

September 9

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify specific elements of an Engineering Design Journal. Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>

EVALUATION: Informal assessment of completion of the “Journaling Like a Pro” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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PA STANDARDS for Science, Engineering, and Technology: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

September 12

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.
- ACTIVITIES:** Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>
Students will review the answers to the handout
- EVALUATION:** Formal assessment of completion of the “Journaling Like a Pro” handout 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of The Thomas Edison Papers
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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- PA STANDARDS for Science, Engineering, and Technology:** 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

September 13

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference.
Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.
- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
- EVALUATION:** Formal assessment of completion of the “Scale Drawings” handout - 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of mathematical terms and their relationship to design

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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PA STANDARDS for Science, Engineering, and Technology 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

September 14

Invention & Innovation 7th Grade

OBJECTIVES: CONTINUED: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference. Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.

ACTIVITIES: Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
Students will review the answers to the handout.

EVALUATION: Informal assessment of completion of the “Scale Drawings” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of mathematical terms and their relationship to design

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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PA STANDARDS for Science, Engineering, and Technology 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

September 15

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will understand the scope, expectations, and grading rubric of the design brief.
Students will be able to brainstorm and create four different rough sketches of different pencil inventions.
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
- ACTIVITIES:** Students will read the Wikipedia entry on the “Space Pen” and discuss its design and limitations.
Students will use the handout “The Great Pencil Invention” to explore step by step procedure and expectations of the design challenge. Students will then review the grading rubric. Finally, students will begin the activity and document the designs in their Engineering Design Journal.
- EVALUATION:** Formal assessment on the completion of the four different rough sketches with the appropriate documentation in the Engineering Design Journal for 16 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of engineering journal documentation
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 16

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
Students will be able to develop a scale of reference, specific measurements, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.

ACTIVITIES: students will make a refined sketch in their Engineering Design Journal with a scale of reference, annotations, title, date, and witnesses.

EVALUATION: Formal assessment on the completion of the refined sketch with the appropriate documentation in the Engineering Design Journal for 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of design brainstorming and sketching

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
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Verbal presentation of reading material by aid when present
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PA STANDARDS for Science, Engineering, and Technology 3.1.10D, 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 19

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
Students will be able to create a final sketch with color based on the refined sketch from the Engineering Design Journal.
Students will be able to develop a scale of reference, specific measurements, annotations, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.

ACTIVITIES: Based on the refined sketch in the Engineering Design Journal, students will make a final sketch on white paper with a scale of reference, annotations, title, date, and witnesses.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of design ideation and development

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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 20

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.
- ACTIVITIES:** Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of simple student inventions
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 21

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.
- ACTIVITIES:** Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 22

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 23

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.
- EVALUATION:** Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of famous inventors
- 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
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- PA STANDARDS for Science, Engineering, and Technology** 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 26

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 2** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx>

[inventors.aspx](#) to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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Option for preferential seating
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 27

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 3** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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
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PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

September 28

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to note and realize truths about invention and innovation and their relationship with developing technology.
Students will be able to compare and contrast the difference between invention and innovation.
- ACTIVITIES:** PowerPoint presentation / discussion: Introduction to Invention & Innovation
Students will fill in the blanks with their "Unit 1 Notes Page" handout for 5 points
- EVALUATION:** Formal assessment on the completion of the "Unit 1 Notes Page" handout 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of inventions and innovation relationship with technology
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 29

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 1** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.

- ACTIVITIES:** “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.
- EVALUATION:** Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of invention & innovation histories
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 30

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 2** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.
- ACTIVITIES:** “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.
- EVALUATION:** Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of invention & innovation histories
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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Modified Tests & Quizzes
Breaking up larger assignments into smaller manageable pieces

PA STANDARDS for Science, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

October 3

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of “bad or useless” inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

October 4

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of “bad or useless” inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

October 5

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify and note the Engineering Design Process as a cyclical method for solving design problems.
Students will be able to formulate that the design process is a set of steps that can be performed in a different sequence and repeated as necessary.

ACTIVITIES: Note the Engineering Design Process in their Engineering design notebooks
Discuss the acronym K.I.S.S.

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

ENRICHMENT: Independent exploration and application 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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

October 6

Technology Systems 8th Grade

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

- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment
 “Basic Safety Rules”- Handout
 Students will read and discuss the handout.
 Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 34 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, 3.7.10B

October 7

Technology Systems 8th Grade

- OBJECTIVES:** **CONTINUED:** Students will be able to understand and follow basic laboratory safety rules.
 Students will be aware and know the appropriate behaviors and expectations for laboratory activities.
- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment
 “Basic Safety Rules”- Handout
 Students will read and discuss the handout.
 Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 34 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, 3.7.10B

October 10
No School
In-service

October 11

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify the criteria and constraints for the “Jelly Bean Dispenser” design brief.
Students will be able to demonstrate using a “check register” for tracking the “purchase” of materials.
Students will be able to select a group of two.
- ACTIVITIES:** Discussion of the directions and expectations for the Bean Dispenser” design brief
Discussion and demonstration of using “money” and the “check register”
Select cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 12

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 13

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 14

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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
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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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 17

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
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PA STANDARDS for Science and Technology:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 18

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 19

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
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PA STANDARDS for Science and Technology:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 20

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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PA STANDARDS for Science and Technology:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 21

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 24

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 25

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES:

Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION:

Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT:

Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 26

Invention & Innovation 7th Grade

OBJECTIVES:

Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES:

Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION:

Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT:

Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 27

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to complete all required documentation.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 28

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to coordinate responsibilities for the final class presentation and testing.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

October 31

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

November 1

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

November 2

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project

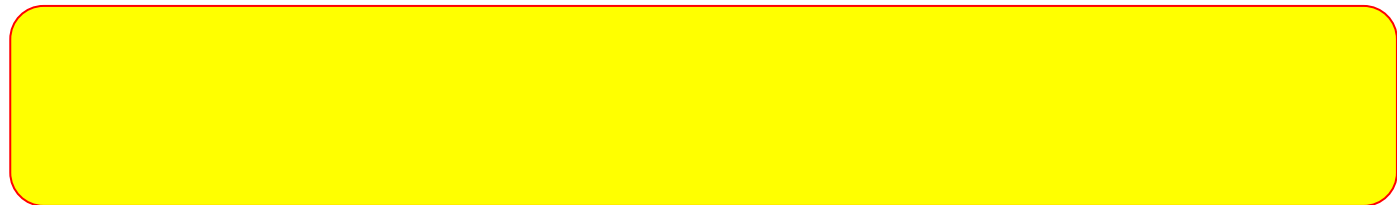
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B



November 3

Invention & Innovation 7th 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: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

November 4

Invention & Innovation 7th 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: **CONTINUED:**
"Giant Inch" measuring review activity
Begin "Measuring Practice" handout

EVALUATION: 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

November 7

Invention & Innovation 7th Grade

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

ACTIVITIES: Completion of the following measuring activity:
"Measuring Practice" handout
"Measuring Practice 1" handout – (Possibly complete for homework)

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

November 8

Invention & Innovation 7th 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.

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

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 and application of measuring

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

November 9

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to sketch and evaluate preliminary designs for the Golf Ball Tower Challenge
- ACTIVITIES:** Golf Ball Tower Challenge - Handout
Discuss challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Select groups – and group leader
Acquire materials
Begin sketching and evaluating designs
- EVALUATION:** Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of structures and their foundations
- 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: 3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

November 10

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to select a golf ball tower design from their sketches and build it using the provided materials.
- ACTIVITIES:** Golf Ball Tower Challenge - Handout
Review discussion challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Groups will build their structure and revise and adapt as necessary
- EVALUATION:** Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of structures and their foundations
- 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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

November 11

No School

Act 80

November 14

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to conduct group presentations based on the Golf Ball Tower design challenge according to the criteria in the rubric.

ACTIVITIES: Golf Ball Tower Challenge – rubric review
Presentation of Designs and 75% of structure calculation

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

November 15

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify specific elements of an Engineering Design Journal.

Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.

source page: <http://edison.rutgers.edu/docsamp.html>

EVALUATION: Informal assessment of completion of the “Journaling Like a Pro” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

November 16

Invention & Innovation 7th Grade

OBJECTIVES: CONTINUED: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.

source page: <http://edison.rutgers.edu/docsamp.html>

Students will review the answers to the handout

EVALUATION: Formal assessment of completion of the “Journaling Like a Pro” handout 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

November 17

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference.
Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.
- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
- EVALUATION:** Formal assessment of completion of the “Scale Drawings” handout - 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of mathematical terms and their relationship to design
- 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 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

November 18

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference. Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.
- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
Students will review the answers to the handout.
- EVALUATION:** Informal assessment of completion of the “Scale Drawings” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of mathematical terms and their relationship to design
- 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 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

November 21

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will understand the scope, expectations, and grading rubric of the design brief.
Students will be able to brainstorm and create four different rough sketches of different pencil inventions.
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
- ACTIVITIES:** Students will read the Wikipedia entry on the “Space Pen” and discuss its design and limitations.
Students will use the handout “The Great Pencil Invention” to explore step by step procedure and expectations of the design challenge. Students will then review the grading rubric. Finally, students will begin the activity and document the designs in their Engineering Design Journal.

- EVALUATION:** Formal assessment on the completion of the four different rough sketches with the appropriate documentation in the Engineering Design Journal for 16 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of engineering journal documentation
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

November 22

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
Students will be able to develop a scale of reference, specific measurements, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.
- ACTIVITIES:** students will make a refined sketch in their Engineering Design Journal with a scale of reference, annotations, title, date, and witnesses.
- EVALUATION:** Formal assessment on the completion of the refined sketch with the appropriate documentation in the Engineering Design Journal for 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of design brainstorming and sketching
- 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

November 23

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to create a final sketch with color based on the refined sketch from the Engineering Design Journal.
Students will be able to develop a scale of reference, specific measurements, annotations, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.
- ACTIVITIES:** Based on the refined sketch in the Engineering Design Journal, students will make a final sketch on white paper with a scale of reference, annotations, title, date, and witnesses.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of design ideation and development
- 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

November 24 – 29

REMEMBER TO GIVE THANKS!

November 30

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**

Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 1

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 2

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.
- ACTIVITIES:** Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of simple student inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 5

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great->

[inventors.aspx](#) to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 6

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 2** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 7

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 3** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 8

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to note and realize truths about invention and innovation and their relationship with developing technology.
Students will be able to compare and contrast the difference between invention and innovation.
- ACTIVITIES:** PowerPoint presentation / discussion: Introduction to Invention & Innovation
Students will fill in the blanks with their “Unit 1 Notes Page” handout for 5 points
- EVALUATION:** Formal assessment on the completion of the “Unit 1 Notes Page” handout 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of inventions and innovation relationship with technology
- 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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 9

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 1** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.
- ACTIVITIES:** “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.
- EVALUATION:** Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of invention & innovation histories
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 12

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 2** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.

ACTIVITIES: “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.

EVALUATION: Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of invention & innovation histories

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 13

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify and describe a “bad or useless” invention.

- ACTIVITIES:** Students will use the website the Time Magazine, "50 Worst Inventions"
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of "bad or useless" inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 14

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to identify and describe a "bad or useless" invention.
- ACTIVITIES:** Students will use the website the Time Magazine, "50 Worst Inventions"
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of "bad or useless" inventions
- 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

December 15

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and note the Engineering Design Process as a cyclical method for solving design problems.
Students will be able to formulate that the design process is a set of steps that can be performed in a different sequence and repeated as necessary.
- ACTIVITIES:** Note the Engineering Design Process in their Engineering design notebooks
Discuss the acronym K.I.S.S.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application 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

December 16

Technology Systems 8th Grade

- OBJECTIVES:** Students will be able to understand and follow basic laboratory safety rules.
Students will be aware and know the appropriate behaviors and expectations for laboratory activities.
- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 34 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, 3.7.10B

December 19

Technology Systems 8th Grade

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

ACTIVITIES: Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”

EVALUATION: Formal assessment on the completion of the 34 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

December 20

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify the criteria and constraints for the “Jelly Bean Dispenser” design brief.

Students will be able to demonstrate using a “check register” for tracking the “purchase” of materials.
Students will be able to select a group of two.

ACTIVITIES: Discussion of the directions and expectations for the Bean Dispenser” design brief
Discussion and demonstration of using “money” and the “check register”
Select cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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: 3.2.10D, 3.7.4A, 3.8.4B,

December 21

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

December 22

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

December 23

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

December 24 – January 2

CHRISTMAS

January 3

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 4

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid when present
Additional time to complete assignments as necessary
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Breaking up larger assignments into smaller manageable pieces

PA STANDARDS for Science and Technology:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7

January 5

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 6

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 9

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 10

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES:

Cooperative groups of two – Jelly Bean Dispenser design brief

1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach

4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION:

Assessment of group cooperation / productivity

Formal assessment of solution at the completion of the project

Assessment of daily clean-up

ENRICHMENT:

Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 11

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES:	Cooperative groups of two – Jelly Bean Dispenser design brief 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach 4. Sketch a Design 5. Refine the Design 6. Select Materials 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
EVALUATION:	Assessment of group cooperation / productivity Formal assessment of solution at the completion of the project Assessment of daily clean-up
ENRICHMENT:	Independent exploration of problem solving within constraints
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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 12

Invention & Innovation 7th Grade

OBJECTIVES:	Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints. Students will be able to document their daily progress in the Engineering Design Journal. Students will be able to design and construct the device to dispense 4-10 beans at a time.
ACTIVITIES:	Cooperative groups of two – Jelly Bean Dispenser design brief 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach 4. Sketch a Design 5. Refine the Design 6. Select Materials 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
EVALUATION:	Assessment of group cooperation / productivity Formal assessment of solution at the completion of the project Assessment of daily clean-up
ENRICHMENT:	Independent exploration of problem solving within constraints
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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 13

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 18

No School

Act 80

January 17

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to complete all required documentation.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid when present
Additional time to complete assignments as necessary
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Breaking up larger assignments into smaller manageable pieces

PA STANDARDS for Science and Technology:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 18

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to complete all required documentation.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

January 19

Invention & Innovation 7th 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: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

January 20

Invention & Innovation 7th 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:** **CONTINUED:**
"Giant Inch" measuring review activity
Begin "Measuring Practice" handout
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of measuring
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid when present
Additional time to complete assignments as necessary
Modified Tests & Quizzes
Breaking up larger assignments into smaller manageable pieces
- PA STANDARDS for Science, Engineering, and Technology:** 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

January 23

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to use a ruler and measure to the nearest 1/16" inch.
- ACTIVITIES:** Completion of the following measuring activity:
"Measuring Practice" handout
"Measuring Practice 1" handout – (Possibly complete for homework)
- EVALUATION:** Informal assessment of completion of the measuring practice guides
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of measuring
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance

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

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

January 24

Invention & Innovation 7th 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.
- 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
- 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 and application of measuring
- 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

January 25

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to sketch and evaluate preliminary designs for the Golf Ball Tower Challenge
- ACTIVITIES:** Golf Ball Tower Challenge - Handout
Discuss challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Select groups – and group leader

Acquire materials
Begin sketching and evaluating designs

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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: 3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

January 26

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to select a golf ball tower design from their sketches and build it using the provided materials.

ACTIVITIES: Golf Ball Tower Challenge - Handout
Review discussion challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Groups will build their structure and revise and adapt as necessary

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

January 27

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to conduct group presentations based on the Golf Ball Tower design challenge according to the criteria in the rubric.

ACTIVITIES: Golf Ball Tower Challenge – rubric review
Presentation of Designs and 75% of structure calculation

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

January 30

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>

EVALUATION: Informal assessment of completion of the “Journaling Like a Pro” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

January 31

Invention & Innovation 7th Grade

OBJECTIVES: CONTINUED: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>
Students will review the answers to the handout

EVALUATION: Formal assessment of completion of the “Journaling Like a Pro” handout 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

February 1

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference.
Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.

- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
- EVALUATION:** Formal assessment of completion of the “Scale Drawings” handout - 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of mathematical terms and their relationship to design
- 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** 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

February 2

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference. Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.
- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
Students will review the answers to the handout.
- EVALUATION:** Informal assessment of completion of the “Scale Drawings” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of mathematical terms and their relationship to design
- 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 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

February 3

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will understand the scope, expectations, and grading rubric of the design brief.
Students will be able to brainstorm and create four different rough sketches of different pencil inventions.
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
- ACTIVITIES:** Students will read the Wikipedia entry on the “Space Pen” and discuss its design and limitations.
Students will use the handout “The Great Pencil Invention” to explore step by step procedure and expectations of the design challenge. Students will then review the grading rubric. Finally, students will begin the activity and document the designs in their Engineering Design Journal.
- EVALUATION:** Formal assessment on the completion of the four different rough sketches with the appropriate documentation in the Engineering Design Journal for 16 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of engineering journal documentation
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 6

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
Students will be able to develop a scale of reference, specific measurements, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.
- ACTIVITIES:** students will make a refined sketch in their Engineering Design Journal with a scale of reference, annotations, title, date, and witnesses.
- EVALUATION:** Formal assessment on the completion of the refined sketch with the appropriate documentation in the Engineering Design Journal for 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of design brainstorming and sketching
- 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 3.1.10D, 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 7

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will be able to create a final sketch with color based on the refined sketch from the Engineering Design Journal.
Students will be able to develop a scale of reference, specific measurements, annotations, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.
- ACTIVITIES:** Based on the refined sketch in the Engineering Design Journal, students will make a final sketch on white paper with a scale of reference, annotations, title, date, and witnesses.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points

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

ENRICHMENT: Independent exploration and application of design ideation and development

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 8

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 9

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.
- ACTIVITIES:** Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of simple student inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 10

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.
- ACTIVITIES:** Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.
- EVALUATION:** Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of simple student inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 13

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 14

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 2** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.
- EVALUATION:** Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of famous inventors
- 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** 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 15

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 3** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great

Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 16

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to note and realize truths about invention and innovation and their relationship with developing technology.
Students will be able to compare and contrast the difference between invention and innovation.

ACTIVITIES: PowerPoint presentation / discussion: Introduction to Invention & Innovation
Students will fill in the blanks with their "Unit 1 Notes Page" handout for 5 points

EVALUATION: Formal assessment on the completion of the "Unit 1 Notes Page" handout 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of inventions and innovation relationship with technology

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

February 17

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 1** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.

ACTIVITIES: “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.

EVALUATION: Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of invention & innovation histories

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

February 20

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February 21

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 2** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.

ACTIVITIES: “Great Thinkers and Their Inventions” vignettes - Handout

As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.

EVALUATION: Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of invention & innovation histories

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 22

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify and describe a “bad or useless” invention.

ACTIVITIES: Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.

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

ENRICHMENT: Independent exploration of “bad or useless” inventions

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

February 23

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions” <http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm> to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of “bad or useless” inventions
- 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

February 24

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and note the Engineering Design Process as a cyclical method for solving design problems.
Students will be able to formulate that the design process is a set of steps that can be performed in a different sequence and repeated as necessary.
- ACTIVITIES:** Note the Engineering Design Process in their Engineering design notebooks
Discuss the acronym K.I.S.S.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application 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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

February 27

Technology Systems 8th Grade

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

ACTIVITIES: Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”

EVALUATION: Formal assessment on the completion of the 34 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, 3.7.10B

February 28

Technology Systems 8th Grade

OBJECTIVES: **CONTINUED:** Students will be able to understand and follow basic laboratory safety rules.

Students will be aware and know the appropriate behaviors and expectations for laboratory activities.

ACTIVITIES: Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”

EVALUATION: Formal assessment on the completion of the 34 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

March 1

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify the criteria and constraints for the “Jelly Bean Dispenser” design brief.
Students will be able to demonstrate using a “check register” for tracking the “purchase” of materials.
Students will be able to select a group of two.

ACTIVITIES: Discussion of the directions and expectations for the Bean Dispenser” design brief
Discussion and demonstration of using “money” and the “check register”
Select cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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: 3.2.10D, 3.7.4A, 3.8.4B,

March 2

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:
3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 3

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
 4. Sketch a Design 5. Refine the Design 6. Select Materials
 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
 Formal assessment of solution at the completion of the project
 Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.1.7B, 3.1.1.7D, 3.1.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 6

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
 Students will be able to document their daily progress in the Engineering Design Journal.
 Students will be able to design and construct the device to dispense 4-10 beans at a time.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
 4. Sketch a Design 5. Refine the Design 6. Select Materials
 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
 Formal assessment of solution at the completion of the project
 Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 7

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 8

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
 4. Sketch a Design 5. Refine the Design 6. Select Materials
 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
 Formal assessment of solution at the completion of the project
 Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 9

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
 Students will be able to document their daily progress in the Engineering Design Journal.
 Students will be able to design and construct the device to dispense 4-10 beans at a time.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
 4. Sketch a Design 5. Refine the Design 6. Select Materials
 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
- EVALUATION:** Assessment of group cooperation / productivity
 Formal assessment of solution at the completion of the project
 Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 10

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 13

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES:	Cooperative groups of two – Jelly Bean Dispenser design brief 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach 4. Sketch a Design 5. Refine the Design 6. Select Materials 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
EVALUATION:	Assessment of group cooperation / productivity Formal assessment of solution at the completion of the project Assessment of daily clean-up
ENRICHMENT:	Independent exploration of problem solving within constraints
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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 14

Invention & Innovation 7th Grade

OBJECTIVES:	Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints. Students will be able to document their daily progress in the Engineering Design Journal. Students will be able to design and construct the device to dispense 4-10 beans at a time.
ACTIVITIES:	Cooperative groups of two – Jelly Bean Dispenser design brief 1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach 4. Sketch a Design 5. Refine the Design 6. Select Materials 7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype
EVALUATION:	Assessment of group cooperation / productivity Formal assessment of solution at the completion of the project Assessment of daily clean-up
ENRICHMENT:	Independent exploration of problem solving within constraints
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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 15

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 16

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to complete all required documentation.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 17

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to complete all required documentation.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 20

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to coordinate responsibilities for the final class presentation and testing.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 21

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project

Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 22

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

March 23

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

REVERSE ORDER – PROJECT 1st – LAST 9 WEEKS

March 24

Invention & Innovation 7th 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: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

March 27

Invention & Innovation 7th 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: **CONTINUED:**
"Giant Inch" measuring review activity
Begin "Measuring Practice" handout

EVALUATION: 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

March 28

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to use a ruler and measure to the nearest 1/16" inch.
- ACTIVITIES:** Completion of the following measuring activity:
 "Measuring Practice" handout
 "Measuring Practice 1" handout – (Possibly complete for homework)
- 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

March 29

Invention & Innovation 7th 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.
- 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
- 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 and application of measuring
- ACCOMMODATIONS:** Students that score less than 70% may practice and retake the measuring test at another time
 Additional time to complete tasks / tests / quizzes / assignments
 T /F Safety tests read to all students
 Option for students to take formal assessments taken in the Learning Support room
 Option for preferential seating
 Option for individual guidance
 Verbal presentation of reading material by aid when present

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

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

March 30

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**
Students will understand the scope, expectations, and grading rubric of the design brief.
Students will be able to brainstorm and create four different rough sketches of different pencil inventions.
Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
- ACTIVITIES:** Students will read the Wikipedia entry on the “Space Pen” and discuss its design and limitations.
Students will use the handout “The Great Pencil Invention” to explore step by step procedure and expectations of the design challenge. Students will then review the grading rubric. Finally, students will begin the activity and document the designs in their Engineering Design Journal.
- EVALUATION:** Formal assessment on the completion of the four different rough sketches with the appropriate documentation in the Engineering Design Journal for 16 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of engineering journal documentation
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

March 31

Invention & Innovation 7th Grade

- OBJECTIVES:** **The Great Pencil Invention Design Brief**

Students will be able to write annotations to explain the function and purpose for each of the designs.
Students will be able to create a refined sketch that uses various aspects of the rough sketch designs.
Students will be able to develop a scale of reference, specific measurements, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.

ACTIVITIES: students will make a refined sketch in their Engineering Design Journal with a scale of reference, annotations, title, date, and witnesses.

EVALUATION: Formal assessment on the completion of the refined sketch with the appropriate documentation in the Engineering Design Journal for 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of design brainstorming and sketching

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 3.1.10D, 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 3

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
Students will be able to create a final sketch with color based on the refined sketch from the Engineering Design Journal.
Students will be able to develop a scale of reference, specific measurements, annotations, and a title for the invention.
Students will be able to develop an appropriate and aesthetically pleasing color scheme with markers and colored pencils.

ACTIVITIES: Based on the refined sketch in the Engineering Design Journal, students will make a final sketch on white paper with a scale of reference, annotations, title, date, and witnesses.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of design ideation and development

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 4

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 5

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**

CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 6

Invention & Innovation 7th Grade

OBJECTIVES: **The Great Pencil Invention Design Brief**
CONTINUED: Students will be able to develop a brief presentation based on their pencil invention and the criteria from the grading rubric.

ACTIVITIES: Students will develop a presentation for their pencil invention.
Students will present their invention to the class and explain its function, features, and purpose.

EVALUATION: Formal assessment on the completion of the final sketch with the appropriate documentation on white paper for 30 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of simple student inventions

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 7

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and note the Engineering Design Process as a cyclical method for solving design problems.
Students will be able to formulate that the design process is a set of steps that can be performed in a different sequence and repeated as necessary.
- ACTIVITIES:** Note the Engineering Design Process in their Engineering design notebooks
Discuss the acronym K.I.S.S.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application 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, Engineering, and Technology 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

April 10

Technology Systems 8th Grade

- OBJECTIVES:** Students will be able to understand and follow basic laboratory safety rules.
Students will be aware and know the appropriate behaviors and expectations for laboratory activities.
- ACTIVITIES:** Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”
- EVALUATION:** Formal assessment on the completion of the 34 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, 3.7.10B

April 11

Technology Systems 8th Grade

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

ACTIVITIES: Students will take a tour of the lab facilities to review locations of safety equipment
“Basic Safety Rules”- Handout
Students will read and discuss the handout.
Quiz 28 points “Engineering & Technology Basic Safety Rules Test”

EVALUATION: Formal assessment on the completion of the 34 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

Easter April 12 – 17

No School

April 18

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify the criteria and constraints for the “Jelly Bean Dispenser” design brief.
Students will be able to demonstrate using a “check register” for tracking the “purchase” of materials.
Students will be able to select a group of two.
- ACTIVITIES:** Discussion of the directions and expectations for the Bean Dispenser” design brief
Discussion and demonstration of using “money” and the “check register”
Select cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:** 3.2.10D, 3.7.4A, 3.8.4B

April 19

Invention & Innovation 7th Grade

- OBJECTIVES:** Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 20

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 21

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 24

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.

Students will be able to document their daily progress in the Engineering Design Journal.

Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 25

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 26

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 27

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

April 28

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 1

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 2

Invention & Innovation 7th Grade

OBJECTIVES: Continued: Students will be able to use the Engineering Design Process to “invent” a jelly bean dispenser using a variety of provided materials according to the given criteria/constraints.
Students will be able to document their daily progress in the Engineering Design Journal.
Students will be able to design and construct the device to dispense 4-10 beans at a time.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials

7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 3

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to complete all required documentation.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete
documentation: Engineering Design Journal entries, list of design changes from initial
sketch to final design, sales poster

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 4

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to complete all required documentation.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 5

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to coordinate responsibilities for the final class presentation and testing.
- ACTIVITIES:** Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist
- EVALUATION:** Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up
- ENRICHMENT:** Independent exploration of problem solving within constraints
- 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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 8

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach
4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 9

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to present their final machine design and test its function for the class.

ACTIVITIES: Cooperative groups of two – Jelly Bean Dispenser design brief
1. Identify the Problem 2. Brain Storm for Solutions 3. Select an Approach

4. Sketch a Design 5. Refine the Design 6. Select Materials
7. Build the Prototype 8. Test the Prototype 9. Refine the Prototype 10. Complete documentation: Engineering Design Journal entries, list of design changes from initial sketch to final design, sales poster 11. Coordinate responsibilities for the final presentation using the grading rubric as a checklist 12. Final class presentation with a functional test of the machine operating

EVALUATION: Assessment of group cooperation / productivity
Formal assessment of solution at the completion of the project
Assessment of daily clean-up

ENRICHMENT: Independent exploration of problem solving within constraints

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:

3.1.7B, 3.1.7D, 3.1.7B, 3.6.7C, 3.7.7A, 3.7.7B, 3.7.7C, 3.7.7D, 3.8.7B

May 10

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to sketch and evaluate preliminary designs for the Golf Ball Tower Challenge

ACTIVITIES: Golf Ball Tower Challenge - Handout
Discuss challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Select groups – and group leader
Acquire materials
Begin sketching and evaluating designs

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

May 11

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to select a golf ball tower design from their sketches and build it using the provided materials.

ACTIVITIES: Golf Ball Tower Challenge - Handout
Review discussion challenge criteria, constraints, mathematical formula for 75% of height, presentation requirements, and grading rubric
Groups will build their structure and revise and adapt as necessary

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

May 12

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to conduct group presentations based on the Golf Ball Tower design challenge according to the criteria in the rubric.

ACTIVITIES: Golf Ball Tower Challenge – rubric review
Presentation of Designs and 75% of structure calculation

EVALUATION: Formal assessment of 40 points for combine challenge and group presentation
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of structures and their foundations

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:

3.1.7B, 3.1.7D, 3.2.7B, 3.2.7D, 3.6.7C, 3.7.7A, 3.7.7B

May 15

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>

EVALUATION: Informal assessment of completion of the “Journaling Like a Pro” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

May 16

Invention & Innovation 7th Grade

OBJECTIVES: CONTINUED: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>
Students will review the answers to the handout

EVALUATION: Formal assessment of completion of the “Journaling Like a Pro” handout 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

May 17

Invention & Innovation 7th Grade

OBJECTIVES: CONTINUED: Students will be able to identify specific elements of an Engineering Design Journal.
Students will be able to conclude and develop reasons for the required elements of an Engineering Design Journal.

ACTIVITIES: Students will use the “Journaling Like a Pro: The Thomas Edison Papers” handout as a guide to search the Edison Papers at Rutgers University to discover common elements of an Engineering Design Journal. Students will use the link on my website to access the Edison webpage.
source page: <http://edison.rutgers.edu/docsamp.html>
Students will review the answers to the handout

EVALUATION: Formal assessment of completion of the “Journaling Like a Pro” handout 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of The Thomas Edison Papers

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: 3.1.7A, 3.1.4D, 3.2.4A, 3.7.4D, 3.8.4A

May 18

Invention & Innovation 7th Grade

OBJECTIVES: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference.
Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.

ACTIVITIES: Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.

EVALUATION: Formal assessment of completion of the “Scale Drawings” handout - 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of mathematical terms and their relationship to design

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 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

May 19

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to define and provide samples for the mathematical terms: Ratio, Proportion, Scale, Scale Drawing, and Scale of Reference. Students will be able to correctly develop ratios, proportions, scales, and scale drawings. Students will be able to identify a scale of reference in a drawing.
- ACTIVITIES:** Students will use the handout “Scale Drawings” and the website www.harcourtschool.com/glossary/math_advantage/glossary6.html to answer questions.
Students will access the website through my website portal.
Students will use the “scale of Reference” PowerPoint with the YouTube videos “Scale of the Planets and Stars” and “Celestial Bodies”.
Students will review the answers to the handout.
- EVALUATION:** Informal assessment of completion of the “Scale Drawings” handout
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of mathematical terms and their relationship to design
- 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** 3.1.4C, 3.1.4D, 3.1.7D, 3.1.10D, 3.2.4A, 3.7.4D

May 22

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors
- ACTIVITIES:** “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great

Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 23

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 2** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 24

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 3** Students will be able to identify their three most famous inventors of all time, their inventions, and how the invention may have impacted the way people lived, worked, or produced things.
Students will be able to, identify the attributes or personal characteristics of the people cited that made them successful inventors

ACTIVITIES: “Famous Inventors” handout
Students will use prior know information and research PBS Who Made America – Inventors
http://www.pbs.org/wgbh/theymadeamerica/whomade/innovators_hi.html ,
Enchanted Learning – US and Canadian Inventors and Inventions
<http://www.enchantedlearning.com/inventors/us.shtml> , American Inventors: Great Inventors: Titans of American Innovation <http://www.american-inventor.com/great-inventors.aspx> to find information on their three most favorite inventors to answer questions from handout. Students will work independently on his activity. In a discussion format, students will answer questions and share their results with the class.

EVALUATION: Formal assessment on the completion of the handout. 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of famous inventors

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 25

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to note and realize truths about invention and innovation and their relationship with developing technology.
Students will be able to compare and contrast the difference between invention and innovation.
- ACTIVITIES:** PowerPoint presentation / discussion: Introduction to Invention & Innovation
Students will fill in the blanks with their "Unit 1 Notes Page" handout for 5 points
- EVALUATION:** Formal assessment on the completion of the "Unit 1 Notes Page" handout 5 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of inventions and innovation relationship with technology
- 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** 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 26

Invention & Innovation 7th Grade

- OBJECTIVES:** **DAY 1** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.
- ACTIVITIES:** "Great Thinkers and Their Inventions" vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.
- EVALUATION:** Formal assessment on the completion of the handout "Great Thinkers and Their Inventions" vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of invention & innovation histories

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 29

No School
Memorial Day

May 30

Invention & Innovation 7th Grade

OBJECTIVES: **DAY 2** Students will be able to select a vignettes and identify the needs or desires that were satisfied by the invention, identify some of the materials that were needed to make the invention and identify some of the tools that were used to make the invention.

ACTIVITIES: “Great Thinkers and Their Inventions” vignettes - Handout
As a class we will read the four vignettes, and then students will pick one of the vignettes to think about. They will then answer questions pertaining to the concepts in relation to their vignette.

EVALUATION: Formal assessment on the completion of the handout “Great Thinkers and Their Inventions” vignettes for 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of invention & innovation histories

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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

May 31

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
[\](#)
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of “bad or useless” inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

June 1

Invention & Innovation 7th Grade

- OBJECTIVES:** CONTINUED: Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
[\](#)
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of “bad or useless” inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B

June 2

Invention & Innovation 7th Grade

- OBJECTIVES:** Students will be able to identify and describe a “bad or useless” invention.
- ACTIVITIES:** Students will use the website the Time Magazine, “50 Worst Inventions”
<http://www.time.com/time/specials/packages/completelist/0,29569,1991915,00.htm>
to select two of their favorite worst inventions. Students may watch the associated video and conduct further research at Wikipedia. Students will then briefly present to the class their favorite worst inventions.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of “bad or useless” inventions
- 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 3.2.4A, 3.2.10D, 3.7.4A, 3.8.4B, 3.8.12B