

WELCOME BACK!

ROCKWOOD

Engineering & Technology

Lesson Plans Mr. Kush

August 28

TECHNICAL DESIGN

OBJECTIVES: Students will be able to comply with the set expectations and procedures for this class.
Students will contemplate future job occupations and future education opportunities.

ACTIVITIES: Introduction & discussion of course
Procedure / Policy Handout
Distribute folder & Engineering Design Journal
Complete the occupation questionnaire
Complete the ERCA & Career and Technical Education Planning Profile

EVALUATION: Procedure / Policy / Student Expectation signature form is due by Friday 2nd

ENRICHMENT: Independent exploration of Rockwood's 2010-2011 "Student Expectations"
Be Respectful
Be Prepared
Be On Time

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

PA STANDARDS for Science, Engineering, and Technology: N/A

August 29

TECHNICAL DESIGN

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 1/16" inch.

ACTIVITIES: "Giant Inch" measuring review activity

Completion of the following measuring activities:

“Measuring Practice” handout

“Measuring Practice 1” handout

“Measuring Practice 2” handout

Measuring Test

EVALUATION: Informal assessment of completion of the measuring practice guides
Procedure / Policy / Student Expectation signature form is due Friday
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of measuring
Measuring game activity at <http://www.rsinnovative.com/rulergame/>

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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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, Engineering, and Technology: 3.1.10A, 3.1.7E, 3.2.7A, 3.6.10B, 3.7.10A

August 30

TECHNICAL DESIGN

OBJECTIVES: Students will be able to examine reasons that sketching is used to communicate.
Students will be able to identify and demonstrate construction, object, hidden, dimension, and center lines.
Students will be able to demonstrate proper sketching form and techniques for vertical and horizontal lines and triangular shapes.

ACTIVITIES: Handout “Sketching Tips”

EVALUATION: Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent sketching activities

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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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, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

August 31

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to demonstrate proper freehand sketching form and techniques for circles and arcs.
Students will be able to accurately sketch horizontal and vertical lines $\frac{1}{2}$ " modeling proper sketching techniques.
- ACTIVITIES:** Handout "Sketching Tips"
Handout "Sketching Unit Checklist"
Complete horizontal and vertical line sketch activity.
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

September 3

Labor Day – No School

September 4

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to accurately sketch squares increasing in size by $\frac{1}{2}$ "
Students will be able to accurately sketch circles in squares increasing in size by $\frac{1}{2}$ "

- ACTIVITIES:** Handout "Sketching Tips"
Complete Square in a Square activity
Complete Circle in a Square activity
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 5

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to demonstrate sketch compound sketching techniques.
- ACTIVITIES:** Handout "Sketching Tips"
Complete challenge part activity
Complete 3D Arrow activity
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 6

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to create 3D shapes using the angle line technique.
- ACTIVITIES:** 3D angle line corner technique demonstration
Activity: 3D Initials
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent 3D sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 7

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to identify perspective.
Students will be able to create perspective 3D shapes
- ACTIVITIES:** perspective point technique demonstration
Activity: 3D Initials perspective
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent 3D sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 10

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to identify differing perspective points.
Students will be able to create a vanishing point perspective sketch
- ACTIVITIES:** handout – “Hallway Vanishing Point”
vanishing point perspective point technique demonstration
Activity: vanishing point hallway practice
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent vanishing point sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 11

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to create a vanishing point perspective sketch.
- ACTIVITIES:** handout – “Hallway Vanishing Point”
Activity: vanishing point hallway final copy

EVALUATION: Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent vanishing point sketching activities

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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September 12

TECHNICAL DESIGN

OBJECTIVES: **CONTINUED:** Students will be able to create a vanishing point perspective sketch.

ACTIVITIES: handout – “Hallway Vanishing Point”
Activity: vanishing point hallway final copy

EVALUATION: Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent vanishing point sketching activities

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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September 13

TECHNICAL DESIGN

- OBJECTIVES:** **CONTINUED:** Students will be able to create a vanishing point perspective sketch.
- ACTIVITIES:** handout – “Hallway Vanishing Point”
Activity: vanishing point hallway final copy
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent vanishing point sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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September 14

TECHNICAL DESIGN

- OBJECTIVES:** Given a three dimensional object, students will be able to sketch its orthographic projections.
- ACTIVITIES:** Orthographic projection demonstration
Student practice of orthographic projection
Orthographic Projection 1 assignment
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent orthographic sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / 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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September 17

TECHNICAL DESIGN

- OBJECTIVES:** Given a three dimensional object, students will be able to sketch its orthographic projections.
- ACTIVITIES:** Orthographic Projection 2 assignment
Orthographic Projection 3 assignment
Orthographic Projection 4 assignment
- EVALUATION:** Formal assessment of sketching assignments at the completion of this unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent orthographic sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /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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September 18

TECHNICAL DESIGN

- OBJECTIVES:** **3D-Object Design Unit - Handout**
Students will be able to plan and sketch a three dimensional object within the set parameters having one angle, cutout, notch, or hole.
- ACTIVITIES:** Using $\frac{1}{4}$ " graph paper, students will create three different idea sketches for the challenge.
Students will select one idea for approval by Mr. Kush
- EVALUATION:** Formal assessment of 12 points for the rough sketches for meeting quality and size parameters
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent orthographic sketching activities

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal 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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September 19

TECHNICAL DESIGN

OBJECTIVES: 3D-Object Design Unit - Handout

Students will be able to sketch orthographic views for their selected 3D object.

ACTIVITIES: Using ¼" graph paper, students will draw the top, front, and side views of their selected 3D object.
Students will use the prescribed lettering style and format.
Students will provide accurate measurements for each line.

EVALUATION: Formal assessment of the orthographic views at the completion of the unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent orthographic sketching activities

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
Option for individual guidance
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3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

September 20

TECHNICAL DESIGN

- OBJECTIVES:** **3D-Object Design Unit - Handout**
Students will be able to sketch the isometric view for their selected 3D object.
- ACTIVITIES:** Students will observe a sample isometric view presentation.
Using $\frac{1}{4}$ " graph paper, students will draw the isometric view of their selected 3D object.
Students will use the prescribed lettering style and format.
Students will provide accurate measurements for each line.
- EVALUATION:** Formal assessment of the isometric views at the completion of the unit.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent isometric sketching activities
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
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September 21

TECHNICAL DESIGN

- OBJECTIVES:** **3D-Object Design Unit - Handout**
Students will be able to **construct** the 3-D object according to their three view orthographic drawing.
- ACTIVITIES:** Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.
- EVALUATION:** Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of 3-D 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
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September 24

TECHNICAL DESIGN

OBJECTIVES: **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.

ACTIVITIES: Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.

EVALUATION: Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of 3-D design.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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September 25

TECHNICAL DESIGN

OBJECTIVES: **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.

ACTIVITIES: Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must

contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.

EVALUATION: Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of 3-D design.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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September 26

TECHNICAL DESIGN

OBJECTIVES: **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.

ACTIVITIES: Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.

EVALUATION: Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of 3-D design.

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

September 27

TECHNICAL DESIGN

- OBJECTIVES:** **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.
- ACTIVITIES:** Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.
- EVALUATION:** Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of 3-D design.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
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September 28

TECHNICAL DESIGN

- OBJECTIVES:** **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.
- ACTIVITIES:** Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.
- EVALUATION:** Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of 3-D design.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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October 1

TECHNICAL DESIGN

OBJECTIVES: **CONTINUED:** Students will be able to construct the 3-D object according to their three view orthographic drawing.

ACTIVITIES: Students use a selected balsa wood cutter, quilting pins, wood glue, ruler, balsa wood, and their student created orthographic three view drawings to create a 3-D object. The 3-D object must contain a notch, cutout, or hole, and an angle. Students then identify the working planes of the 3-D object by cutting and placing a different color of paper on each of the four planes. Surfaces that are in two planes are identified with a corresponding stripe.

EVALUATION: Formal assessment of the 3-D project based on a scoring rubric.
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of 3-D design.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
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October 2

TECHNICAL DESIGN

OBJECTIVES: Students will be able to demonstrate basic drafting lettering competency.

- ACTIVITIES:** Students will complete the handouts:
Lettering Practice 1 – Large Letters
Lettering Practice 2 – 3/16" 1/8" Smaller Letters
- EVALUATION:** Formal assessment of Lettering Practice 1 – 10 points
Formal assessment of Lettering Practice 2 – 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting lettering technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

October 3

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to demonstrate basic drafting lettering competency.
- ACTIVITIES:** Students will complete the handouts:
Lettering Practice 2 – 3/16" 1/8" Smaller Letters
Letter Practice 3 – Paragraph Lettering
- EVALUATION:** Formal assessment of Lettering Practice 2 – 10 points
Formal assessment of Lettering Practice 3 – 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting lettering technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

October 4

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to demonstrate basic drafting lettering competency.
- ACTIVITIES:** Students will complete the handouts:
Lettering Practice 2 – 3/16" 1/8" Smaller Letters
Letter Practice 3 – Paragraph Lettering
- EVALUATION:** Formal assessment of Lettering Practice 2 – 10 points
Formal assessment of Lettering Practice 3 – 10 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting lettering technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A

October 5

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to identify basic drafting tools: T-square, 30-60-90 & 45 triangles, compass
Students will be able to use basic drawing tools to produce a board and title bar using proper drawing techniques.
- ACTIVITIES:** Introduction to drafting and drafting tools
Demonstration of attaching a paper to the drawing board, creating a standard border with title block with proper lettering skills and identifying the center of a paper
Student will create a practice border and title bar
Students will create a final border and title bar Sheet #0
- EVALUATION:** Formal assessment of the final copy of the border and title bar Sheet #0
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting lettering technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 9

Technical Design

OBJECTIVES: Students will be able to conduct a brief presentation on development of personal mechanical drawing skills

ACTIVITIES: Presentation on development of personal mechanical drawing skills

EVALUATION: Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent exploration of mechanical drawing

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 10

TECHNICAL DESIGN

OBJECTIVES: Students will be able to identify basic drafting tools: T-square, 30-60-90 & 45 triangles, compass
Students will be able to use basic drawing tools to produce a board and title bar using proper drawing techniques.

ACTIVITIES: Introduction to drafting and drafting tools
Demonstration of attaching a paper to the drawing board, creating a standard border with title block with proper lettering skills and identifying the center of a paper
Student will create a practice border and title bar
Students will create a final border and title bar Sheet #0

EVALUATION: Formal assessment of the final copy of the border and title bar Sheet #0
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting lettering technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 11

TECHNICAL DESIGN

OBJECTIVES: Students will be able to identify basic drafting tools: T-square, 30-60-90 & 45 triangles, compass
Students will be able to use basic drawing tools to produce a board and title bar using proper drawing techniques.

ACTIVITIES: Introduction to drafting and drafting tools
Demonstration of attaching a paper to the drawing board, creating a standard border with title block with proper lettering skills and identifying the center of a paper
Student will create a practice border and title bar
Students will create a final border and title bar Sheet #0

EVALUATION: Formal assessment of the final copy of the border and title bar Sheet #0
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting lettering technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 12

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to identify and use basic drafting tools: T-square, 30-60-90 & 45 triangles, compass Students will be able to use basic drawing tools to produce a board and title bar using proper drawing techniques.
- ACTIVITIES:** Use drawing tools and drawing, and measuring techniques to draw Sheet #1 Football Field
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #1 Football Field
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 15

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to identify and use basic drafting tools: T-square, 30-60-90 & 45 triangles, compass Students will be able to use basic drawing tools to produce a board and title bar using proper drawing techniques.
- ACTIVITIES:** Use drawing tools and drawing, and measuring techniques to draw Sheet #1 Football Field
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #1 Football Field
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 16

TECHNICAL DESIGN

OBJECTIVES: Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #1 Football Field

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #1 Football Field
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 17

TECHNICAL DESIGN

OBJECTIVES: **Day 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #2 Inlay

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #2 Inlay
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments

T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 18

TECHNICAL DESIGN

OBJECTIVES: **Day 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #2 Inlay

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #2 Inlay
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 19

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #3 H Stencil

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #3 H Stencil
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 22

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #3 H Stencil

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #3 H Stencil
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 23

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #3 H Stencil

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #3 H Stencil
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 24

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #4 Rockwood Pride

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #4 Rockwood Pride
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

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

Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 25

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #4 Rockwood Pride

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #4 Rockwood Pride
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 26

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #5 Stop Sign

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #5 Stop Sign
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 29

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #5 Stop Sign

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #5 Stop Sign
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 30

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #5 Stop Sign

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #5 Stop Sign
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

October 31

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #6 Header Gasket

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #6 Header Gasket
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

END 1st 9 Weeks

November 1

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #6 Header Gasket

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #6 Header Gasket
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 5

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

- ACTIVITIES:** Draw and solve Sheet #6 Header Gasket
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #6 Header Gasket
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 6

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.
- ACTIVITIES:** Presentation on reading all scales on an Architect Scale. Students will participate in reading various scales and drawing lines of specific lengths.
- EVALUATION:** Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of reading Architect Scales.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 7

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #7 Scaled Drawing

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #7 Scaled Drawing
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 8

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #7 Scaled Drawing

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #7 Scaled Drawing
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 9

TECHNICAL DESIGN

OBJECTIVES: Students will be able to select and prepare a compass for drawing use
Students will be able to use and apply compass techniques.
Students will be able to draw basic arcs and circles. "Circle & Arc Practice".

ACTIVITIES: Select and prepare a compass for drawing
On blank white paper, use and experiment with a compass to draw practice arcs and circles of various sizes

EVALUATION: 20 points for completion of Sheet #8
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 13

TECHNICAL DESIGN

OBJECTIVES: CONTINUED: Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance. Students will be able to apply a variety of scales on the Architect Scale to develop drawing #8 "Circle & Arc Practice".

ACTIVITIES: Continue mechanical drawing of Sheet #8 "Circle & Arc Practice"

EVALUATION: 20 points for completion of Sheet #8
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 14

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #9 Shearing Blank

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #9 Shearing Blank
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 15

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #9 Shearing Blank

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #9 Shearing Blank
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 16

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #9 Shearing Blank

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #9 Shearing Blank
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 19

TECHNICAL DESIGN

- OBJECTIVES:** **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.
- ACTIVITIES:** Draw and solve Sheet #10 Fibonacci Spiral
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #10 Fibonacci Spiral
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 20

TECHNICAL DESIGN

- OBJECTIVES:** **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.
- ACTIVITIES:** Draw and solve Sheet #10 Fibonacci Spiral
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #10 Fibonacci Spiral
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room

Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 21

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.

ACTIVITIES: Draw and solve Sheet #11 Soccer Field

EVALUATION: Formal 20 point assessment of the final copy of the border and title bar Sheet #11 Soccer Field Spiral
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration of drafting technique.

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

Thanksgiving Vacation

Remember to give thanks for all that you are thankful for!

November 22 - 27

November 28

TECHNICAL DESIGN

- OBJECTIVES:** **DAY 2** Students will be able to use mechanical drawing tools to produce a drawing according to the given dimensions. Students will be able to use basic algebra and problem solving to solve for unknown measurements. Students will be able to demonstrate proper mechanical drawing technique.
- ACTIVITIES:** Draw and solve Sheet #11 Soccer Field
- EVALUATION:** Formal 20 point assessment of the final copy of the border and title bar Sheet #11 Soccer Field Spiral
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration of drafting technique.
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T / F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 29

TECHNICAL DESIGN

- OBJECTIVES:** **DAY 1** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Steeler Logo” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.
- ACTIVITIES:** Begin mechanical drawing of Sheet #12 Steeler Logo
- EVALUATION:** 20 points for completion of Sheet #12 Steeler Logo
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

November 30

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Steeler Logo” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.

ACTIVITIES: Begin mechanical drawing of Sheet #12 Steeler Logo

EVALUATION: 20 points for completion of Sheet #12 Steeler Logo
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 3

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Steeler Logo” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.

ACTIVITIES: Begin mechanical drawing of Sheet #12 Steeler Logo

EVALUATION: 20 points for completion of Sheet #12 Steeler Logo
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 4

TECHNICAL DESIGN

OBJECTIVES: **Day 1** Students will be able to differentiate between isometric, oblique, and orthographic views.
Students will be able to identify drawings as isometric, oblique, and orthographic views.
Students will be able to create an isometric cubes freeform drawing.

ACTIVITIES: Read handout “Exploring Drafting – How to Make Isometric and Oblique Drawings”
Begin mechanical drawing of Sheet #13 Isometric Stop Block

EVALUATION: 20 points for completion of Sheet #13 Isometric Stop Block
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 5

TECHNICAL DESIGN

OBJECTIVES: **Day 2** Students will be able to differentiate between isometric, oblique, and orthographic views.
Students will be able to identify drawings as isometric, oblique, and orthographic views.
Students will be able to create an isometric cubes freeform drawing.

ACTIVITIES: Read handout “Exploring Drafting – How to Make Isometric and Oblique Drawings”
Continue mechanical drawing of Sheet #13 Isometric Stop Block

EVALUATION: 20 points for completion of Sheet #13 Isometric Stop Block
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 6

Technical Design

OBJECTIVES: **DAY 1** Students will be able to identify surfaces from a given geometric object from an orthographic view .
Students will be able to identify matching geometric objects in an orthographic view with other views of the object.
Given an isometric view of a geometric object, students will be able to create the correct orthographic and oblique view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: Notes: Define and Identify orthographic, oblique, and isometric
COMPLETE: “Surfaces and Views” handout

EVALUATION: Formal assessment on the completion of the “Surfaces and Views” handout
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent 3-D drawing views exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 7

Technical Design

OBJECTIVES: **DAY 2** Students will be able to identify surfaces from a given geometric object from an orthographic view .
Students will be able to identify matching geometric objects in an orthographic view with other views of the object.
Given an isometric view of a geometric object, students will be able to create the correct orthographic and oblique view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: Notes: Define and Identify orthographic, oblique, and isometric
COMPLETE: "Surfaces and Views" handout

EVALUATION: Formal assessment on the completion of the "Surfaces and Views" handout
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent 3-D drawing views exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 10

Technical Design

OBJECTIVES: **DAY 1** Students will be able to identify surfaces from a given geometric object from an orthographic view .
Students will be able to identify matching geometric objects in an orthographic view with other views of the object.
Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: #14 Stop Block Bravo

EVALUATION: Formal assessment on the completion of the #14 Stop Block Bravo
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent 3-D drawing views exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 11

Technical Design

- OBJECTIVES:** **DAY 2** Students will be able to identify surfaces from a given geometric object from an orthographic view .
Students will be able to identify matching geometric objects in an orthographic view with other views of the object.
Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.
- ACTIVITIES:** #14 Stop Block Bravo
- EVALUATION:** Formal assessment on the completion of the #14 Stop Block Bravo
Informal assessment of daily participation points
Assessment of Clean Up duties
- ENRICHMENT:** Independent 3-D drawing views exploration
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 12

TECHNICAL DESIGN

- OBJECTIVES:** **DAY 1** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the "Starting Catch" according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.
- ACTIVITIES:** Begin mechanical drawing of Sheet #15 Starting Catch
- EVALUATION:** 20 points for completion of **Sheet #15 Starting Catch**
Informal assessment of daily participation points
Assessment of Clean Up duties
- ENRICHMENT:** Independent drafting exploration
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 13

TECHNICAL DESIGN

OBJECTIVES: **DAY 2** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Starting Catch” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.

ACTIVITIES: Begin mechanical drawing of Sheet #15 Starting Catch

EVALUATION: 20 points for completion of Sheet #15 Starting Catch
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 14

TECHNICAL DESIGN

OBJECTIVES: **DAY 3** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Starting Catch” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.

ACTIVITIES: Begin mechanical drawing of Sheet #15 Starting Catch

EVALUATION: 20 points for completion of Sheet #15 Starting Catch
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room

Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 17

TECHNICAL DESIGN

OBJECTIVES: **DAY 1** Students will be able to prepare a drawing board. Students will then appropriately use drawing tools to accurately draw a border, title bar, and the “Isometric Circle” according to specific tolerances and scale. Students will be able to solve for measurements and proficiently use the 30° 60° 90° triangle and the 45° 45° 90° triangle. Students will proficiently and accurately use the compass to create circle and arcs. Students will be able to use and apply all scales on the Architect Scale. Students will be able to draw lines of correct length given any scale or distance.

ACTIVITIES: Begin mechanical drawing of Sheet #16 Isometric Circle

EVALUATION: 20 points for completion of Sheet #16 Isometric Circle
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent drafting exploration

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 18

Technical Design

OBJECTIVES: **DAY 1** Students will be able to follow specific directions
Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of the “Back-Up Slide”.
Students will then be able to will to select a letter and create an ISOMETRIC drawing
Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: “Oblique, Orthographic, Isometric Initials”
Draw first name or initials in an OBLIQUE drawing form on ¼” isometric graph paper
20 points for completion of Sheet #17 Back-Up Slide (on green paper with standard title bar)

EVALUATION: Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials”

project 40 points

The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points

Assessment of Clean Up duties

ENRICHMENT: Independent exploration of 3-D drawing views

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 19

Technical Design

OBJECTIVES: **DAY 2** Students will be able to follow specific directions
Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the “Back-Up Slide”.
Students will then be able to will to select a letter and create an ISOMETRIC drawing
Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: “Oblique, Orthographic, Isometric Initials”
Draw first name or initials in an OBLIQUE drawing form on ¼” isometric graph paper
20 points for completion of Sheet #17 Back-Up Slide (on green paper with standard title bar)

EVALUATION: Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials”
project 40 points
The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points

Assessment of Clean Up duties

ENRICHMENT: Independent exploration of 3-D drawing views

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 20

Technical Design

OBJECTIVES:

DAY 3 Students will be able to follow specific directions

Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the “Back-Up Slide”.

Students will then be able to will to select a letter and create an ISOMETRIC drawing

Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.

Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES:

“Oblique, Orthographic, Isometric Initials”

Draw first name or initials in an OBLIQUE drawing form on ¼” isometric graph paper
20 points for completion of Sheet #17 Back-Up Slide (on green paper with standard title bar)

EVALUATION:

Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials” project 40 points

The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points

Assessment of Clean Up duties

ENRICHMENT:

Independent exploration of 3-D drawing views

ACCOMMODATIONS:

Additional time to complete tasks / tests / quizzes / assignments

Formal assessments taken in the Learning Support room

Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

December 21

Technical Design

OBJECTIVES:

DAY 1 Students will be able to follow specific directions

Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the “Back-Up Slide Orthographic”.

Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.

Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES:

“Oblique, Orthographic, Isometric Initials”

Create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of name or initials

Create an ISOMETRIC drawing of selected letter

Preliminary sketches will be completed on ¼" standard graph paper or ¼" isometric graph paper

20 points for completion of Sheet #18 Back-Up Slide Orthographic (on green paper with standard title bar)

EVALUATION:

Formal assessment on the completion of the "Oblique, Orthographic, Isometric Initials" project 40 points

The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points

Assessment of Clean Up duties

ENRICHMENT:

Independent exploration of 3-D drawing views

ACCOMMODATIONS:

Additional time to complete tasks / tests / quizzes / assignments

Formal assessments taken in the Learning Support room

Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

MERRY CHRISTMAS!

December 22 – January 2

January 3

Technical Design

OBJECTIVES:

DAY 2 Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the "Back-Up Slide Orthographic".

Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.

Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES:

"Oblique, Orthographic, Isometric Initials"

Create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of name or initials

Create an ISOMETRIC drawing of selected letter

Preliminary sketches will be completed on ¼" standard graph paper or ¼" isometric graph paper

20 points for completion of Sheet #18 Back-Up Slide Orthographic (on green paper with standard title bar)

EVALUATION: Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials” project 40 points
The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent exploration of 3-D drawing views

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 4

Technical Design

OBJECTIVES: **DAY 3** Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the “Back-Up Slide Orthographic”.
Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.
Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES: “Oblique, Orthographic, Isometric Initials”
Create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of name or initials
Create an ISOMETRIC drawing of selected letter
Preliminary sketches will be completed on ¼” standard graph paper or ¼” isometric graph paper
20 points for completion of Sheet #18 Back-Up Slide Orthographic (on green paper with standard title bar)

EVALUATION: Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials” project 40 points
The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent exploration of 3-D drawing views

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room

Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 7

Technical Design

OBJECTIVES:

DAY 4 Students will be able to create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of letter of the “Back-Up Slide Orthographic”.

Given an isometric view of a geometric object, students will be able to create the correct orthographic and isometric view sketches.

Students will be able to define and identify orthographic, oblique, and isometric geometric figures.

ACTIVITIES:

“Oblique, Orthographic, Isometric Initials”

Create an ORTHOGRAPHIC projection of the TOP, FRONT, and SIDE views of name or initials

Create an ISOMETRIC drawing of selected letter

Preliminary sketches will be completed on ¼” standard graph paper or ¼” isometric graph paper

20 points for completion of Sheet #18 Back-Up Slide Orthographic (on green paper with standard title bar)

EVALUATION:

Formal assessment on the completion of the “Oblique, Orthographic, Isometric Initials” project 40 points

The final drawing will be initialed by another student who will have checked the accuracy of the orthographic views and isometric projection

Informal assessment of daily participation points

Assessment of Clean Up duties

ENRICHMENT:

Independent exploration of 3-D drawing views

ACCOMMODATIONS:

Additional time to complete tasks / tests / quizzes / assignments

Formal assessments taken in the Learning Support room

Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 8

Technical Design

OBJECTIVES:

Day 1 Students will be able to complete all late or redo drawings.

Students will be able to assemble and compile their mechanical drawing portfolio.

Students will be able to clean and prepare all drawing tools for next year.

Students will be able to prepare for brief presentation on development of personal mechanical drawing skills.

ACTIVITIES: Complete all late or redo drawings.
Assemble and compile their mechanical drawing portfolio
Use the mechanical binder on the drawing portfolio
Clean and prepare all drawing tools for next year
Prepare for brief presentation on development of personal mechanical drawing skills

EVALUATION: Brief presentation on development of drawing skills
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent exploration of mechanical drawing

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 9

Technical Design

OBJECTIVES: **Day 2** Students will be able to complete all late or redo drawings.
Students will be able to assemble and compile their mechanical drawing portfolio.
Students will be able to clean and prepare all drawing tools for next year.
Students will be able to prepare for brief presentation on development of personal mechanical drawing skills.

ACTIVITIES: Complete all late or redo drawings.
Assemble and compile their mechanical drawing portfolio
Use the mechanical binder on the drawing portfolio
Clean and prepare all drawing tools for next year
Prepare for brief presentation on development of personal mechanical drawing skills

EVALUATION: Brief presentation on development of drawing skills
Informal assessment of daily participation points
Assessment of Clean Up duties

ENRICHMENT: Independent exploration of mechanical drawing

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 10

Technical Design

OBJECTIVES:	Day 2 Students will be able to complete all late or redo drawings. Students will be able to assemble and compile their mechanical drawing portfolio. Students will be able to clean and prepare all drawing tools for next year. Students will be able to prepare for brief presentation on development of personal mechanical drawing skills.
ACTIVITIES:	Complete all late or redo drawings. Assemble and compile their mechanical drawing portfolio Use the mechanical binder on the drawing portfolio Clean and prepare all drawing tools for next year Prepare for brief presentation on development of personal mechanical drawing skills
EVALUATION:	Brief presentation on development of drawing skills Informal assessment of daily participation points Assessment of Clean Up duties
ENRICHMENT:	Independent exploration of mechanical drawing
ACCOMMODATIONS:	Additional time to complete tasks / tests / quizzes / assignments Formal assessments taken in the Learning Support room Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 11

Technical Design

OBJECTIVES:	Day 2 Students will be able to complete all late or redo drawings. Students will be able to assemble and compile their mechanical drawing portfolio. Students will be able to clean and prepare all drawing tools for next year. Students will be able to prepare for brief presentation on development of personal mechanical drawing skills.
ACTIVITIES:	Complete all late or redo drawings. Assemble and compile their mechanical drawing portfolio Use the mechanical binder on the drawing portfolio Clean and prepare all drawing tools for next year Prepare for brief presentation on development of personal mechanical drawing skills
EVALUATION:	Brief presentation on development of drawing skills Informal assessment of daily participation points Assessment of Clean Up duties
ENRICHMENT:	Independent exploration of mechanical drawing
ACCOMMODATIONS:	Additional time to complete tasks / tests / quizzes / assignments Formal assessments taken in the Learning Support room Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

CNC LATHE TUTORIAL

January 14

Technical Design

- OBJECTIVES:** **DAY 1** Students will be able use the X, Y, Z coordinate planes to design a mini baseball bat keychain using the CNC lathe.
- ACTIVITIES:** In pairs, students will use the step by step tutorial for the mini baseball bat keychain on the CNC lathe. Other students not using the CNC lathe will continue to work on assigned drawings.
- EVALUATION:** Formal assessment on the completion and sanding quality of the completed mini baseball bat keychain
- ENRICHMENT:** Independent exploration of CNC axis programming
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 15

Technical Design

- OBJECTIVES:** **DAY 2** Students will be able use the X, Y, Z coordinate planes to design a mini baseball bat keychain using the CNC lathe.
- ACTIVITIES:** In pairs, students will use the step by step tutorial for the mini baseball bat keychain on the CNC lathe. Other students not using the CNC lathe will continue to work on assigned drawings.
- EVALUATION:** Formal assessment on the completion and sanding quality of the completed mini baseball bat keychain
- ENRICHMENT:** Independent exploration of CNC axis programming
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 16

Technical Design

- OBJECTIVES:** **DAY 3** Students will be able use the X, Y, Z coordinate planes to design a mini baseball bat keychain using the CNC lathe.
- ACTIVITIES:** In pairs, students will use the step by step tutorial for the mini baseball bat keychain on the CNC lathe. Other students not using the CNC lathe will continue to work on assigned drawings.
- EVALUATION:** Formal assessment on the completion and sanding quality of the completed mini baseball bat keychain
- ENRICHMENT:** Independent exploration of CNC axis programming
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 17

Technical Design

- OBJECTIVES:** **DAY 4** Students will be able use the X, Y, Z coordinate planes to design a mini baseball bat keychain using the CNC lathe.
- ACTIVITIES:** In pairs, students will use the step by step tutorial for the mini baseball bat keychain on the CNC lathe. Other students not using the CNC lathe will continue to work on assigned drawings.
- EVALUATION:** Formal assessment on the completion and sanding quality of the completed mini baseball bat keychain
- ENRICHMENT:** Independent exploration of CNC axis programming
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

January 18

Technical Design

OBJECTIVES: Students will be able to create an outline based on the history and development of computer aided engineering (CAE).

DAY 5 Students will be able use the X, Y, Z coordinate planes to design a mini baseball bat keychain using the CNC lathe.

ACTIVITIES: Using MS Word, students will create an outline on the history and development of computer aided engineering (CAE) from pages 1-1 / 1-7
In pairs, students will use the step by step tutorial for the mini baseball bat keychain on the CNC lathe. Other students not using the CNC lathe will continue to work on assigned drawings.

EVALUATION: Formal assessment on the completeness and correctness of the outline – 10 points
Informal assessment of daily participation points
Formal assessment on the completion and sanding quality of the completed mini baseball bat keychain

ENRICHMENT: Independent exploration of CAE
Independent exploration of CNC axis programming

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.8.10B, 3.8.10C, 3.8.12A, 3.8.12C

3.1.10D, 3.1.12D, 3.2.7B, 3.2.7D, 3.2.10B, 3.2.10D, 3.2.12D, 3.6.7B, 3.7.10A, 3.7.12A, 3.8.12B

START OF 2nd SEMESTER Autodesk Inventor Start

January 22

Technical Design

OBJECTIVES: Students will be able to navigate Autodesk Inventor startup options, unit setup, basic screen layout, user interface, mouse buttons, and on-line help independently.

ACTIVITIES: Book pages 1-7 / 1-14

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

January 23

Technical Design

OBJECTIVES: Students will be able to setup a new project file directory.

ACTIVITIES: Book pages 1-15 / 1-19

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 24

Technical Design

OBJECTIVES: Students will be able to use the “Shape before Size” design approach, create 2-D sketches, and use the basic parametric modeling procedures.

ACTIVITIES: Book pages 2-1 / 2-16

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 25

Technical Design

OBJECTIVES: **DAY 1** Students will be able to create simple extruded solid models, use the dynamic viewing commands, and create and edit parametric dimensions.

ACTIVITIES: Book pages 2-17 / 2-42

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 28

Technical Design

OBJECTIVES: **DAY 2** Students will be able to create simple extruded solid models, use the dynamic viewing commands, and create and edit parametric dimensions.

ACTIVITIES: Book pages 2-17 / 2-42

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 29

Technical Design

OBJECTIVES: Students will be able to develop answers to the review questions.
Students will be able to create solutions to exercise drawing #1 Inclined Support

ACTIVITIES: Book pages 2-43 Use MS Word to type the answers to questions 1-9 on page 2-43
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 9 point formal assessment for answers to review questions
10 point formal assessment for solution to exercise #1 Inclined Support

Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 30

Technical Design

OBJECTIVES: Students will be able to create solutions to exercise drawing #2 Spacer Plate & #3 Positioning Stop

ACTIVITIES: Draw the solution for exercise #2 – 10 points (save and print when completed)
Draw the solution for exercise #3 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Spacer Plate
10 point formal assessment for solution to exercise #3 Positioning Stop
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

January 31

Technical Design

OBJECTIVES: **DAY 1** Students will be able to create solutions to exercise drawing #4 Guide Block

ACTIVITIES: Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Guide Block
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 1

Technical Design

OBJECTIVES: Day 2 Students will be able to create solutions to exercise drawing #4 Guide Block

ACTIVITIES: Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Guide Block
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 4

Technical Design

OBJECTIVES: Students will be able to use and modify a drawing with the model tree history, change 2D snap spacing, draw a line and then adjust to the arc option, extrude for thickness, and create the base feature for the A6-Knee part.

ACTIVITIES: Book pages 3-1 / 3-12

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 5

Technical Design

OBJECTIVES: Students will be able to create a second solid feature, with a 2D sketch and extrusion, rename part features, add a placed feature (concentric hole), use the offset command, create a secondary extrusion, and complete history based part modification for the A6-Knee part.

ACTIVITIES: Book pages 3-13 / 3-24

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 6

Technical Design

OBJECTIVES: Students will be able to add another placed feature (concentric whole with spotface), assign and calculate associated physical properties for the A6-Knee part. Students will be able to answer the review questions.

ACTIVITIES: Book pages 3-25 / 3-30

EVALUATION: Formal assessment – Review Questions 1-7 7 points
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 7

Technical Design

OBJECTIVES: Students will be able to create solutions to exercise drawing #1 Latch Clip

ACTIVITIES: Book pages 3-31
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #1 Latch Clip
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 8

Technical Design

OBJECTIVES: Students will be able to create solutions to exercise drawing #2 Guide Clip

ACTIVITIES: Book pages 3-31
Draw the solution for exercise #2 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Guide Clip
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 11

Technical Design

OBJECTIVES: Students will be able to create solutions to exercise drawing #2 Guide Clip

ACTIVITIES: Book pages 3-31
Draw the solution for exercise #2 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Guide Clip
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 12

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #3 Swivel Yoke

ACTIVITIES: Book pages 3-32
Draw the solution for exercise #3 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #3 Swivel Yoke
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 13

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #3 Swivel Yoke

ACTIVITIES: Book pages 3-32
Draw the solution for exercise #3 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #3 Swivel Yoke
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 14

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #4 Hanger Jaw

- ACTIVITIES:** Book pages 3-32
Draw the solution for exercise #4 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#4 Hanger Jaw
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 15

Technical Design

- OBJECTIVES:** DAY 2 Students will be able to create solutions to exercise drawing #4 Hanger Jaw
- ACTIVITIES:** Book pages 3-32
Draw the solution for exercise #4 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#4 Hanger Jaw
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 19

Technical Design

- OBJECTIVES:** DAY 2 Students will be able to create solutions to exercise drawing #4 Hanger Jaw
- ACTIVITIES:** Book pages 3-32
Draw the solution for exercise #4 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#4 Hanger Jaw
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 20

Technical Design

OBJECTIVES: DAY 3 Students will be able to create solutions to exercise drawing #4 Hanger Jaw

ACTIVITIES: Book pages 3-32
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Hanger Jaw
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 21

TECHNICAL DESIGN

OBJECTIVES: Students will be able to operate and measure with dial calipers with accuracy of +/- .0005
Students will be able to complete the dial caliper activity.

ACTIVITIES: Dial calipers demonstration
Dial calipers measuring activity
<https://www.wisc-online.com/learn/career-clusters/manufacturing/msr4303/how-to-read-a-caliper>
“Measuring With Dial Calipers” handout

EVALUATION: Formal assessment for the “Measuring With Dial Calipers” handout 25 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points

ENRICHMENT: Independent exploration and application of measuring
Measuring game activity at

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments

T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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

February 22

TECHNICAL DESIGN

- OBJECTIVES:** Students will be able to operate and measure with digital calipers with accuracy of +/- .0005
Students will be able to complete the digital caliper activity.
- ACTIVITIES:** Digital calipers demonstration
Digital calipers measuring activity
“Measuring With Digital Calipers” handout
- EVALUATION:** Formal assessment for the “Measuring With Dial Calipers” handout 22 points
Informal assessment of participation and completion of class activities, group participation, and cleanup activities for participation points
- ENRICHMENT:** Independent exploration and application of measuring
Measuring game activity at
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
T /F Safety tests read to all students
Option for students to take formal assessments taken in the Learning Support room
Option for preferential seating
Option for individual guidance
Verbal presentation of reading material by aid 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

February 25

TECHNICAL DESIGN

- OBJECTIVES:** CONTINUED ACTIVITY COMPLETION
Students will be able to operate and measure with digital calipers with accuracy of +/- .0005
Students will be able to complete the digital caliper activity.
Students will be able to operate and measure with dial calipers with accuracy of +/- .0005
Students will be able to complete the dial caliper activity.

- ACTIVITIES:** Digital calipers measuring activity
"Measuring With Digital Calipers" handout
Dial calipers measuring activity
<https://www.wisc-online.com/learn/career-clusters/manufacturing/msr4303/how-to-read-a-caliper>
"Measuring With Dial Calipers" handout
- EVALUATION:** Formal assessment for the "Measuring With Dial Calipers" handout 22 points
Formal assessment for the "Measuring With Dial Calipers" handout 25 points
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

1st DESIGN CHALLENGE

START REVERSE ENGINEERING PROJECT

February 26

Technical Design

- OBJECTIVES:** Students will be able identify the criteria and constraints of the Reverse Engineering project.
Students will be able to sketch an inventory of their parts.
- ACTIVITIES:** Select Teams
Introduction to the Reverse Engineering project
Sketch the inventory of parts and quantities on graph paper
- EVALUATION:** Completion of sketched parts inventory 20 points
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 27

Technical Design

OBJECTIVES: Students will be able to sketch an inventory of their parts.
Students will be able to conduct Internet research on the size of Lego bricks.
Students will be able to determine the exact size of a Lego brick using a formula.
Students will be able accurately measure with a digital caliper.

ACTIVITIES: Complete: Sketch the inventory of parts and quantities on graph paper
Use Internet to research Lego brick size formula
Review of accurately measuring with a digital caliper
Calculate brick sizes and sketch diagram on the board

EVALUATION: Completion of sketched parts inventory 20 points
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

February 28

Technical Design

OBJECTIVES: **CONTINUED:** Students will be able to conduct Internet research on the size of Lego bricks.
Students will be able to determine the exact size of a Lego brick using a formula.
Students will be able accurately measure with a digital caliper.

ACTIVITIES: Use Internet to research Lego brick size formula
Accurately measure bricks with a digital caliper
Calculate brick sizes and sketch diagram on the board

EVALUATION: Completion of sketched parts inventory 20 points
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 1

Technical Design

- OBJECTIVES:** Students will be able to use Autodesk Inventor and reverse engineering to draw their assigned bricks.
Students will be able accurately measure with a digital caliper.
- ACTIVITIES:** Accurately measure bricks with a digital caliper
Draw the bricks using Inventor
- EVALUATION:** Informal assessment of daily participation points
10 Point formal assessment for every completed part
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 4

Technical Design

- OBJECTIVES:** Students will be able to set up and use the 3D Printer to print the test parts.
Students will be able to use Autodesk Inventor and reverse engineering to draw their assigned bricks.
Students will be able accurately measure with a digital caliper.
- ACTIVITIES:** Conduct a test print on the 3D printer
Accurately measure bricks with a digital caliper
Draw the bricks using Inventor
- EVALUATION:** Informal assessment of daily participation points
10 Point formal assessment for every completed part
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 5

Technical Design

OBJECTIVES: Students will be able to analyze the test parts for proper alignment and fit.
Students will be able to use Autodesk Inventor and reverse engineering to draw their assigned bricks.
Students will be able accurately measure with a digital caliper.

ACTIVITIES: Conduct a test fit for the 3D printer blocks.
Accurately measure bricks with a digital caliper
Draw the bricks using Inventor

EVALUATION: Informal assessment of daily participation points
10 Point formal assessment for every completed part

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 6

Technical Design

OBJECTIVES: Students will be able to use the 3D printer to print their completed blocks.

ACTIVITIES: Set up and send drawing files to the 3D printer.
Test fit completed blocks.
Double check list of blocks.

EVALUATION: Informal assessment of daily participation points
10 Point formal assessment for every completed part

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 7

Technical Design

OBJECTIVES: CONTINUED: Students will be able to use the 3D printer to print their completed blocks.

- ACTIVITIES:** Set up and send drawing files to the 3D printer.
Test fit completed blocks.
Double check list of blocks.
- EVALUATION:** Informal assessment of daily participation points
10 Point formal assessment for every completed part
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 8

Technical Design

- OBJECTIVES:** CONTINUED: Students will be able to use the 3D printer to print their completed blocks.
- ACTIVITIES:** Set up and send drawing files to the 3D printer.
Test fit completed blocks.
Double check list of blocks.
- EVALUATION:** Informal assessment of daily participation points
10 Point formal assessment for every completed part
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 11

Technical Design

- OBJECTIVES:** Students be able to build their completed model using the blocks that they designed from the originals.
- ACTIVITIES:** Build robot models with completed parts.
- EVALUATION:** Formal assessment on completion of robot model.
- ENRICHMENT:** Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 12

Technical Design

OBJECTIVES: Students be able to build their completed model using the blocks that they designed from the originals.

ACTIVITIES: Build robot models with completed parts.

EVALUATION: Formal assessment on completion of robot model.

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 13

Technical Design

OBJECTIVES: Students will be able to display existing constraints, identify and apply geometric dimensional constraints, identify fully constrained geometry, and identify situations of over constrained and driven dimensions.

ACTIVITIES: Book pages 4-1 / 4-10

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 14

Technical Design

OBJECTIVES: Students will be able to delete existing constraints, use the auto dimension command, and identify the constraint and sketch settings.

ACTIVITIES: Book pages 4-11 / 4-16

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 15

Technical Design

OBJECTIVES: Students will be able to identify and use the BORN technique and create the 2D sketch for the base feature, and identify parametric relations for B3-Leg.

ACTIVITIES: Book pages 4-17 / 4-23

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 18

Technical Design

OBJECTIVES: Students will be able to view established parameters and relations, use the fillet command, identify the difference between sketches and profiles, and modify a profile for B3-Leg.

ACTIVITIES: Book pages 4-24 / 4-30

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 19

Technical Design

OBJECTIVES: Students will be able to extrude with the taper angle option, create a profile containing multiple closed regions, and add a feature using existing geometry for B3-Leg.

ACTIVITIES: Book pages 4-31 / 4-37

EVALUATION: Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 20

Technical Design

OBJECTIVES: Students will be able to use the measure tool, use the wireframe display, and use the measure area command for B3-Leg.

ACTIVITIES: Book pages 4-38 / 4-41

EVALUATION: Formal assessment of “B3-Leg” part 10 points
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 21

Technical Design

OBJECTIVES: Students will be able to create the boot part using a sketches with the center point circle command, extrusion, and hole command. Students will be able to answer the review questions and create a 2D sketch and measure the associated perimeter.

ACTIVITIES: Book pages 4-42 / 4-45

EVALUATION: Formal assessment – Review Questions 1-7 7 points
Formal assessment of “Boot” part 10 points
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 22

Technical Design

OBJECTIVES: **DAY 1** Students will be able to create solutions to exercise drawing #1 Swivel Base

ACTIVITIES: Book page 4-46
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Swivel Base
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 25

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #1 Swivel Base

ACTIVITIES: Book page 4-46
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Swivel Base
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 26

Technical Design

OBJECTIVES: DAY 3 Students will be able to create solutions to exercise drawing #1 Swivel Base

ACTIVITIES: Book page 4-46
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Swivel Base
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 27

Technical Design

- OBJECTIVES:** DAY 1 Students will be able to create solutions to exercise drawing #2 C-Clip
- ACTIVITIES:** Book page 4-46
Draw the solution for exercise #2 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#2 C-Clip
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 28

Technical Design

- OBJECTIVES:** DAY 2 Students will be able to create solutions to exercise drawing #2 C-Clip
- ACTIVITIES:** Book page 4-46
Draw the solution for exercise #2 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#2 C-Clip
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

March 29

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #3 Wedge Block

ACTIVITIES: Book page 4-47
Draw the solution for exercise #3 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#3 Wedge Block
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 1

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #3 Wedge Block

ACTIVITIES: Book page 4-47
Draw the solution for exercise #3 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#3 Wedge Block
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 2

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #4 Hinge Guide

ACTIVITIES: Book page 4-47
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Hinge Guide
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 3

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #4 Hinge Guide

ACTIVITIES: Book page 4-47
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Hinge Guide
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 4

Technical Design

OBJECTIVES: DAY 3 Students will be able to create solutions to exercise drawing #4 Hinge Guide

ACTIVITIES: Book page 4-47
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#4 Hinge Guide
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

STRING LEVEL DESIGN CHALLENGE

April 3

Technical Design

- OBJECTIVES:** **DAY 1:** Students will be able to use Autodesk Inventor and the String Level Design Challenge design brief directions to design a solution that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will draw the bubble vial according to digital caliper measurements. Using AutoDesk Inventor, students will design the string level according to the design criteria. Students will create two separate dimensioned orthographic drawings of the bubble vial and the string level design. Students will use the 3D printer to print up to three iterations of the string level design.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Bubble Vial drawing dimensioned orthographic drawing
20 Point formal assessment for completion of the String Level dimensioned orthographic drawing
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 4

Technical Design

- OBJECTIVES:** **DAY 2:** Students will be able to use Autodesk Inventor and the String Level Design Challenge design brief directions to design a solution that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will draw the bubble vial according to digital caliper measurements. Using AutoDesk Inventor, students will design the string level according to the design criteria. Students will create two separate dimensioned orthographic drawings of the bubble vial and the string level design. Students will use the 3D printer to print up to three iterations of the string level design.
- EVALUATION:** Informal assessment of daily participation points

20 Point formal assessment for completion of the Bubble Vial drawing dimensioned orthographic drawing
20 Point formal assessment for completion of the String Level dimensioned orthographic drawing

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 5

Technical Design

OBJECTIVES: **DAY 3:** Students will be able to use Autodesk Inventor and the String Level Design Challenge design brief directions to design a solution that meets the specific criteria for the challenge. Students will apply the Engineering Design

ACTIVITIES: Using AutoDesk Inventor, students will draw the bubble vial according to digital caliper measurements. Using AutoDesk Inventor, students will design the string level according to the design criteria. Students will create two separate dimensioned orthographic drawings of the bubble vial and the string level design. Students will use the 3D printer to print up to three iterations of the string level design.

EVALUATION: Informal assessment of daily participation points
20 Point formal assessment for completion of the Bubble Vial drawing dimensioned orthographic drawing
20 Point formal assessment for completion of the String Level dimensioned orthographic drawing

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 8

Technical Design

OBJECTIVES: **DAY 4:** Students will be able to use Autodesk Inventor and the String Level Design Challenge design brief directions to design a solution that meets the specific criteria for the challenge. Students will apply the Engineering Design

ACTIVITIES: Using AutoDesk Inventor, students will draw the bubble vial according to digital caliper measurements. Using AutoDesk Inventor, students will design the string level according to the

design criteria. Students will create two separate dimensioned orthographic drawings of the bubble vial and the string level design. Students will use the 3D printer to print up to three iterations of the string level design.

EVALUATION: Informal assessment of daily participation points
20 Point formal assessment for completion of the Bubble Vial drawing dimensioned orthographic drawing
20 Point formal assessment for completion of the String Level dimensioned orthographic drawing

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 9

Technical Design

OBJECTIVES: Students will be able to use the world coordinate system to create a 2D sketch of the base feature and extrude it on the YZ plane.

ACTIVITIES: Book pages 6-1 / 6-8

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" part 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 10

Technical Design

OBJECTIVES: Students will be able to create a symmetrical cut feature on the XY plane, use the projected geometry option to create a revolved feature with a taper from the 2D sketch plane.

ACTIVITIES: Book pages 6-9 / 6-13

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" part 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 11

Technical Design

OBJECTIVES: **DAY 5:** Students will be able to use Autodesk Inventor and the String Level Design Challenge design brief directions to design a solution that meets the specific criteria for the challenge. Students will apply the Engineering Design

ACTIVITIES: Using AutoDesk Inventor, students will draw the bubble vial according to digital caliper measurements. Using AutoDesk Inventor, students will design the string level according to the design criteria. Students will create two separate dimensioned orthographic drawings of the bubble vial and the string level design. Students will use the 3D printer to print up to three iterations of the string level design.

EVALUATION: Informal assessment of daily participation points
20 Point formal assessment for completion of the Bubble Vial drawing dimensioned orthographic drawing
20 Point formal assessment for completion of the String Level dimensioned orthographic drawing

ENRICHMENT: Independent exploration of reverse engineering

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 12

Technical Design

OBJECTIVES: Students will be able to create another extruded feature, use the trim command with fx constraints, and use the concentric hole command.

ACTIVITIES: Book pages 6-14 / 6-16

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" part 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 15

Technical Design

OBJECTIVES: Students will be able to create a cut feature on the XY plane that is symmetrical. Students will be able to create a mirrored feature.

ACTIVITIES: Book pages 6-17 / 6-19

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" part 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 16

Technical Design

OBJECTIVES: Students will be able to navigate the drawing mode of 2D paper space, change the default mode to Standard ANSI, select third angle projection, navigate the pre-defined drawing sheet formats, and place drawing views

ACTIVITIES: Book pages 6-20 / 6-24

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" drawing sheet 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 17

Technical Design

OBJECTIVES: Students will be able to delete, activate, and edit a drawing sheet, add a base view, create projected views, adjust the view scale, reposition views, and display feature dimensions.

ACTIVITIES: Book pages 6-25 / 6-31

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" drawing sheet 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 18

Technical Design

OBJECTIVES: Students will be able to reposition and hide feature dimensions, add additional dimensions, reference dimensions, add center marks and center lines, and complete the drawing sheet with title block.

ACTIVITIES: Book pages 6-31 / 6-36

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" drawing sheet 10 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 23

Technical Design

OBJECTIVES: Students will be able to navigate associative functionality, and modify feature dimensions.
Students will be able to answer the review questions.

ACTIVITIES: Book pages 6-37 / 6-40

EVALUATION: Informal assessment of daily participation points
Formal assessment of "A12-Rear Axle Support" drawing sheet 10 points
Formal assessment – Review Questions 1-9 9 points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 24

Technical Design

OBJECTIVES: **DAY 1** Students will be able to create solutions to exercise drawing #1 Slide Mount

ACTIVITIES: Book page 6-41
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Slide Mount
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 25

Technical Design

OBJECTIVES: **DAY 2** Students will be able to create solutions to exercise drawing #1 Slide Mount

ACTIVITIES: Book page 6-41
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Slide Mount
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 26

Technical Design

OBJECTIVES: **DAY 3** Students will be able to create solutions to exercise drawing #1 Slide Mount

ACTIVITIES: Book page 6-41
Draw the solution for exercise #1 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise#1 Slide Mount
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 29

Technical Design

OBJECTIVES: **DAY 1** Students will be able to create solutions to exercise drawing #2 Corner Stop

ACTIVITIES: Book page 6-41
Draw the solution for exercise #2 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Corner Stop
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

April 30

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #2 Corner Stop

ACTIVITIES: Book page 6-41
Draw the solution for exercise #2 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Corner Stop
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 1

Technical Design

OBJECTIVES: DAY 3 Students will be able to create solutions to exercise drawing #2 Corner Stop

ACTIVITIES: Book page 6-41
Draw the solution for exercise #2 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #2 Corner Stop
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 2

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #3 Ratchet Plate

- ACTIVITIES:** Book page 6-42
Draw the solution for exercise #3 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#3 Ratchet Plate
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 3

Technical Design

- OBJECTIVES:** DAY 2 Students will be able to create solutions to exercise drawing #3 Ratchet Plate
- ACTIVITIES:** Book page 6-42
Draw the solution for exercise #3 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#3 Ratchet Plate
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 6

Technical Design

- OBJECTIVES:** DAY 3 Students will be able to create solutions to exercise drawing #3 Ratchet Plate
- ACTIVITIES:** Book page 6-42
Draw the solution for exercise #3 – 10 points (save and print when completed)
- EVALUATION:** 10 point formal assessment for solution to exercise#3 Ratchet Plate
Informal assessment of daily participation points
- ENRICHMENT:** Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 7

Technical Design

OBJECTIVES: DAY 1 Students will be able to create solutions to exercise drawing #4 Angle Support

ACTIVITIES: Book page 6-42
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #4 Angle Support
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 8

Technical Design

OBJECTIVES: DAY 2 Students will be able to create solutions to exercise drawing #4 Angle Support

ACTIVITIES: Book page 6-42
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #4 Angle Support
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 9

Technical Design

OBJECTIVES: DAY 3 Students will be able to create solutions to exercise drawing #4 Angle Support

ACTIVITIES: Book page 6-42
Draw the solution for exercise #4 – 10 points (save and print when completed)

EVALUATION: 10 point formal assessment for solution to exercise #4 Angle Support
Informal assessment of daily participation points

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 10

Technical Design

OBJECTIVES: Students will be able to research spinning top design.
Students will use the engineering design process to develop a design within the given criteria.
Students will be able to use Inventor design a spinning top.

ACTIVITIES: Read the design brief “Spinning Top Challenge” and discuss the criteria and grading rubric.
Students will conduct informal Internet research of spinning top design.

EVALUATION: Informal assessment of daily participation points
Formal rubric assessment at the completion of the project

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

Mini Vehicle Project Design Challenge

May 13

Technical Design

- OBJECTIVES:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Sketch orthographically the front, side, top, and rear views of the vehicle and submit for grading and approval.
- EVALUATION:** Informal assessment of daily participation points
10 Point formal assessment for completion of orthographic sketch
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 14

Technical Design

- OBJECTIVES:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the wheels according to the design criteria. Students will create a dimensioned orthographic drawing of the wheel design. Students will use the 3D printer to print up to three iterations of the wheel design.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Wheel Drawing
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 15

Technical Design

- OBJECTIVES:** **DAY 2:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the wheels according to the design criteria. Students will create a dimensioned orthographic drawing of the wheel design. Students will use the 3D printer to print up to three iterations of the wheel design.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Wheel Drawing
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 16

Technical Design

- OBJECTIVES:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 17

Technical Design

- OBJECTIVES:** **DAY 2:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 20

Technical Design

- OBJECTIVES:** **DAY 2:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 21

Technical Design

- OBJECTIVES:** **DAY 3:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 22

Technical Design

- OBJECTIVES:** **DAY 4:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 23

Technical Design

- OBJECTIVES:** **DAY 5:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 24

Technical Design

- OBJECTIVES:** **DAY 6:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 28

Technical Design

- OBJECTIVES:** **DAY 7:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 29

Technical Design

- OBJECTIVES:** **DAY 7:** Students will be able to use Autodesk Inventor and the Mini Vehicle Project Design Challenge design brief directions to design a vehicle that meets the specific criteria for the challenge. Students will apply the Engineering Design
- ACTIVITIES:** Using AutoDesk Inventor, students will design the vehicle frame and body according to the design criteria. Students will create two separate dimensioned orthographic drawings of the frame and body designs. Students will use the 3D printer to print up to three iterations of the frame and body designs.
- EVALUATION:** Informal assessment of daily participation points
20 Point formal assessment for completion of the Frame Design
20 Point formal assessment for completion of the Body Design
- ENRICHMENT:** Independent exploration of reverse engineering
- ACCOMMODATIONS:** Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

PA STANDARDS for Science, Engineering, and Technology:

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

May 30

Technical Design

OBJECTIVES: **CONTINUED:** Students will design a title page with their name with the letters extruded to .10. Students will be able to set up and print to the large format printer using the set parameters. Students will be able to set up and use the binding machine on their printed drawings.

ACTIVITIES: Students will use Inventor to design a cover page and extrude the letters to .10. The name will be placed only isometrically on the printed title page with the standard border and title bar. Students will print all of their drawings and documents for the 3rd 9 weeks. Students will bind all of their printed drawings and submit for grading.

EVALUATION: Informal assessment of daily participation points
Formal assessment of completed and bound drawings.

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

PA STANDARDS for Science, Engineering, and Technology:

May 31

Technical Design

OBJECTIVES: **CONTINUED:** Students will design a title page with their name with the letters extruded to .10. Students will be able to set up and print to the large format printer using the set parameters. Students will be able to set up and use the binding machine on their printed drawings.

ACTIVITIES: Students will use Inventor to design a cover page and extrude the letters to .10. The name will be placed only isometrically on the printed title page with the standard border and title bar. Students will print all of their drawings and documents for the 3rd 9 weeks. Students will bind all of their printed drawings and submit for grading.

EVALUATION: Informal assessment of daily participation points
Formal assessment of completed and bound drawings.

ENRICHMENT: Independent exploration of CAE

ACCOMMODATIONS: Additional time to complete tasks / tests / quizzes / assignments
Formal assessments taken in the Learning Support room
Preferential seating

3.2.7B, 3.2.7D, 3.2.10D, 3.2.12A, 3.6.7A, 3.6.7B, 3.6.10B, 3.6.12B, 3.6.12C, 3.7.7B, 3.7.7C, 3.7.7D, 3.7.10A, 3.7.10B, 3.7.10C, 3.7.10D, 3.7.12A, 3.7.12B, 3.7.12C, 3.8.12B

PA STANDARDS for Science, Engineering, and Technology: