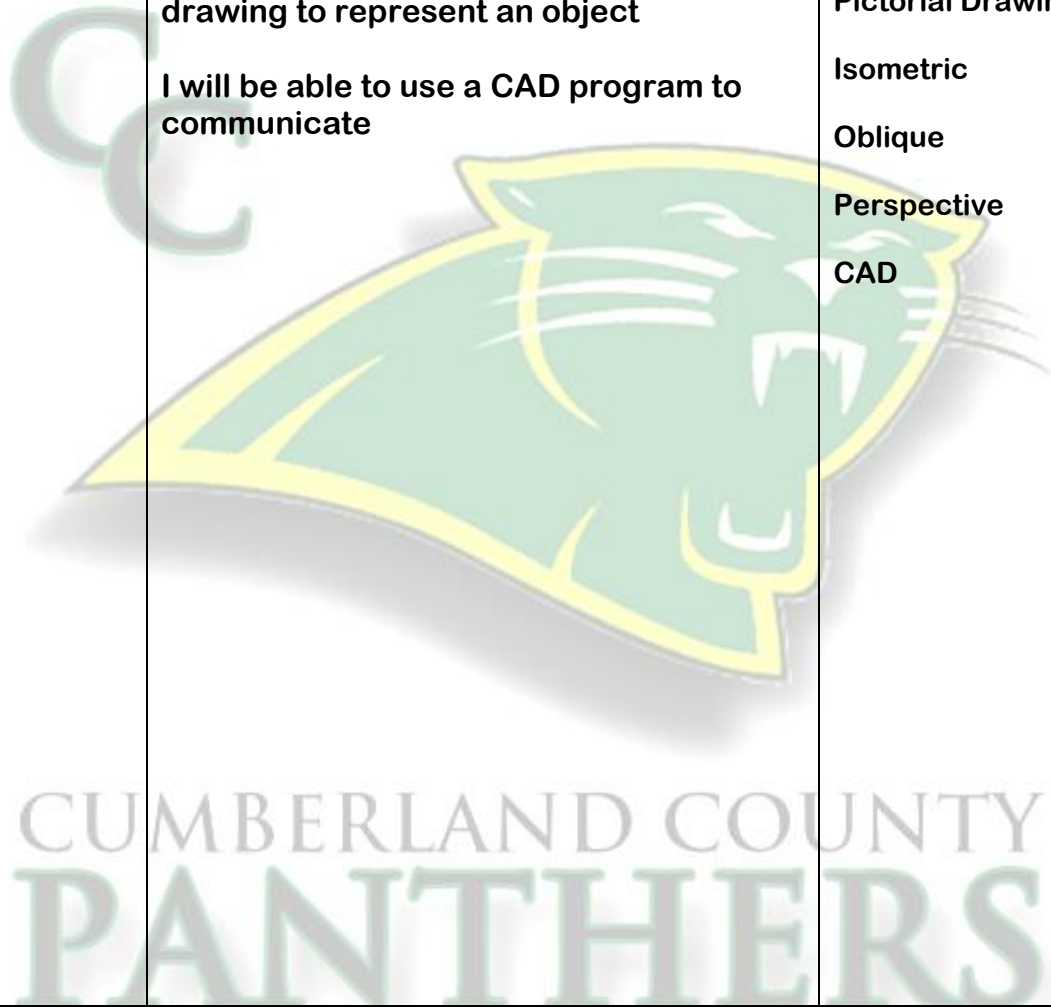


**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Engineering Design 2	Grade: 10 -12
Benchmark Assessment 1		
Instructional Timeline: 1st 9 Weeks		
Topic(s): Planning and Design		
KOSSA Engineering & Design Standards	Learning Targets (I Can Statements)	Key Vocabulary
OI – Engineering Design	I will be able to identify the steps in the engineering design process	Identifying the problem
OQ 5 – Many ways of Communicating	I will be able to measure to 1/16" accuracy	Researching the problem
AD 1- Perform basic and higher level math operations	I will be able to use manual drafting equipment to communicate design solutions	Developing possible solutions
AD 2 – Solve problems using measurement skills	I will be able to identify the lines in the alphabet of lines	Selecting the best solution
OS – Manufacturing Technologies - Materials	I will be able to make an orthographic drawing to represent an object to 1/16" accuracy	Implementing the solution
	I will be able to identify 3 types of pictorial drawings	Evaluating the solution
	I will be able to make an isometric drawing to represent an object to 1/16" accuracy	Improving the solution
	I will be able to make an oblique drawing	Drawing Board
		T-Square
		Architect's Scale
		30-60 and 45 degree Triangles
		Hidden line
		Visible line
		Dimension line

	<p>to represent an object to 1/16"</p> <p>I will be able to make a perspective drawing to represent an object</p> <p>I will be able to use a CAD program to communicate</p>	<p>Orthographic Drawing</p> <p>Pictorial Drawing</p> <p>Isometric</p> <p>Oblique</p> <p>Perspective</p> <p>CAD</p>
--	---	--



**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Engineering Design 2	Grade: 10 -12
Benchmark Assessment 2		
Instructional Timeline: 2nd 9 Weeks		
Topic(s): Teamwork, Design, and Safety		
KOSSA Engineering & Design Standards	Learning Targets (I Can Statements)	Key Vocabulary
EF 1 – Recognize the characteristics of a team environment and conventional workplace	I will be able to identify and demonstrate the 4 teamwork skills necessary to be a successful team member	Encouragers
EF 2 – Contribute to the success of a team	I will be able to follow general safety procedures in a school shop	Leaders
EF 3 – Demonstrate effective team skills and evaluate their importance in the workplace	I will be able to operate a bandsaw and a drill press safely	Contributors
EN 1 – Assume responsibility for safety of self and others	I will be able to design and build a top that will spin for the longest time	Critical Thinking
EN 2 – Follow safety guidelines in the workplace	I will be able sketch top design ideas	Brainstorming
OK 1 - Apply the design process Identify a design problem	I will be able to make an orthographic drawing of my best top design	Work Ethic
OK 2 – Identify criteria and Constraints	I will be able to work with a team and select our best top design to produce	Conflict Resolution
	I will be able to test our design and gather information on other group designs	Balance
		Symetrical
		Center of Gravity
		Beam bridge
		Arch bridge

<p>OH 3 – Designs need to be refined</p>	<p>I will be able to use information gathered from top testing to improve my design and create a top that will spin for a longer amount of time</p> <p>I will be able to explain the differences between a beam, an arch, and a suspension bridge</p> <p>I will be able to use a computer simulation to design a bridge that will hold the most weight</p> <p>I will be able to make an orthographic drawing of bridge that will span 12'' and hold the most weight</p> <p>I will be able to construct a bridge using 1/4'' balsa wood strips from an orthographic drawing</p> <p>I will test the designed bridges to determine which design was the strongest and evaluate why</p>	<p>Suspension bridge</p>
---	---	---------------------------------

**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Engineering Design	Grade: 10 -12
Benchmark Assessment 3		
Instructional Timeline: 3rd 9 Weeks		
Topic(s): Manufacturing Careers and Employability Skills		
KOSSA Engineering & Design Standards	Learning Targets (I Can Statements)	Key Vocabulary
EK – Job Acquisition and Advancement EK 1 – Recognizes the importance of maintain a job and pursuing a career EK 2 - Define jobs associated with a specific career path or profession EA - Positive work ethic EB – Integrity EC – Self Representation EF - Teamwork	I will be able to use various resources to find the educational requirements, working conditions, salary, and job outlook for a career I will be able to do a “reality check” to see what expenses are incurred by an adult living alone or raising a family I will be able to identify manufacturing careers and jobs related to the career of my choice I will be able to demonstrate enthusiasm and confidence about work and learning new tasks I will be able to demonstrate consistent and punctual attendance I will be able to demonstrate initiative in assuming tasks	Occupational Outlook Handbook Job search Career Job Salary Hourly wage Minimum wage Goals Values Apprentice Educational requirements Manufacturing processes Design Quality Control Research and Development Initiative Integrity Trust Predictable Reliable Organized Leadership Attitude

	<p>I will be able to exhibit dependability in the workplace</p> <p>I will be able to take and provide direction in the workplace</p> <p>I will be able to demonstrate honesty and reliability</p> <p>I will be able to use language and manners suitable for the workplace</p> <p>I will be able to demonstrate polite and respectful behavior toward others</p> <p>I will be able to demonstrate personal accountability in the workplace</p> <p>I will be able to demonstrate pride in work</p> <p>I will be able to work with minimal supervision</p>	<p>Professionalism</p> <p>Positive Attitude</p> <p>Fairness</p> <p>Respect</p> <p>Diversity</p> <p>Flexibility</p>
--	--	--



**CUMBERLAND COUNTY SCHOOL DISTRICT
BENCHMARK ASSESSMENT CURRICULUM PACING GUIDE**

School: CCHS	Subject: Engineering Design 2	Grade: 10 -12
Benchmark Assessment 4		
Instructional Timeline: 4th 9 Weeks		
Topic(s): Research and Development		
KOSSA Engineering & Design Standards	Learning Targets (I Can Statements)	Key Vocabulary
OB 1 – Core concepts of technology – Systems OI 4 – Factors in engineering design OI 1 – Design principles OK 1 – Identify a design problem OK 2 – Identify Criteria and Constraints OK 4 – Evaluate the design EF 1 – Recognize the characteristics of a team environment and conventional workplace EF 2 – Contribute to the success of a team EF 3 – Demonstrate effective team skills and evaluate their importance in the workplace	I will be able to identify the parts of a Vex robotics system I will be able to work with a team to design a Vex robot to compete in a swept away competition I will be able to assemble parts of the Robotic structure subsystem I will be able to incorporate the parts of a robotics motion subsystem into the structure subsystem to provide movement for our robot I will be able to properly attach the power subsystem to the structure and motion systems. I will be able to include sensors in the robotic system to help control the movement of the groups robot	System Subsystem Structure Motion Servos Motors Gears Sprockets Drive train Tank Treads Lifting Mechanism Sensors

<p>EN 1 – Assume responsibility for safety of self and others</p>	<p>I will be able to attach the logic system to the robotic structure</p>	<p>Tether Cable Microcontroller</p>
<p>EN 2 – Follow safety guidelines in the workplace</p>	<p>I will be able to sync the control system with the logic system to operate our group’s robot</p>	<p>Transmitter</p>
<p>OK 1 - Apply the design process Identify a design problem</p>	<p>I will be able to test our robot for speed and maneuverability</p>	<p>Receiver</p>
<p>OK 2 – Identify criteria and Constraints</p>	<p>I will be able to operate my team’s robot in the ” swept away” competition.</p>	<p>Joystick</p>
<p>OH 3 – Designs need to be refined</p>	<p>I will be able to troubleshoot with my team to make needed improvements to improve the performance of our robot</p>	<p>Object Manipulation</p> <p>Iteration</p>

